Introduction

WHEN OSCAR WILDE PUBLISHED *The Picture of Dorian Gray* in 1890, one reviewer memorably described its parable of duplicity and degeneration as suitable "for none but outlawed noblemen and perverted telegraph-boys."[1] Eight years later, another writer linked telecommunications workers with troubling indiscretions, improper correspondences, and damaging revelations: Henry James's novel *In the Cage* depicts a young woman telegraphist with "odd caprices of curiosity." Sequestered in a telegraph receiving office, she is irresistibly drawn to her customers' electric correspondence. She actively intercedes in the exchange of telegrams between an adulterous couple, in doing so violating the sanctity of public consumers' private utterances and affairs.[2] By the early twentieth century, a fictive "wicked telephone girl" appeared in London's periodical press. Overly attentive to subscribers' conversations and fueled with vindictive jealousy after a failed love affair, she deliberately misdirected connections in order to cause her male customers similar agonies. Another journalist described the young women at telephone switchboards as "playing at the Fates . . . cutting or joining the lines of electric speech between man and man in a great city."[3] Public commentators expressed ambivalence in the stories they told about the telegraphists, telegraph messengers, and telephone operators at the intersections between themselves and the wires. They were concerned about the kinds of trust required of these information conduits.

The telecommunications workers who made information flow smoothly often seemed to be invisible, without agency, both passive and impassive conveyors of communication. British telecommunications administrators described the work as the kind that could be performed by "an ambi-dextrous monkey."[4] Yet electric communication depended on men and women to serve

as mediators. This reality generated a nexus of concerns about privacy, information, and social inequality. When telecommunications workers themselves affirmed their presence, they exposed the dangers inherent in daily labor with the public's private missives. From aspiring telegraphists who laid bare the intellectual engagement that electric transcriptions required to telegraph boys who revealed their customers' secrets, telecommunications workers pushed back against their roles as transparent information conduits. Their corporeality was both their most valuable asset and their undoing.

Serving a Wired World follows London's telecommunication workers from the telegraph system's nationalization in 1870 to the middle of World War I. Over this period, Britons found themselves surrounded by new and expanding communications networks that became essential to modern business, statecraft, and social life. Metropolitan telegraph lines and stations grew rapidly in urban centers. Telegraph poles bordered country rail lines and rural byways. The scale and complexity of London's telecommunications infrastructure asserted the capital's position as the hub of imperial power.

While contemporaries frequently thought of electric information systems on a global scale, organized according to the centralizing logic of empire, they also viewed them on a more intimate level. The new occupations of telegraphist, telegraph messenger, and telephone operator generated overlapping concerns about the human conduits of electric information and their access to the confidential dialogues of others.

The workers who transcribed Morse-coded messages, dispatched telegrams, and operated switchboards disrupted the fantasies of elite users and overseers who envisioned telecommunications as the automatic conveyance of their thoughts, utterances, and desires. The system's users responded to the presence of people along the wires by ignoring, marginalizing, and demeaning the labor of information mediation. Telecommunications workers found their own social and economic aspirations continually obstructed by a consuming public and an administrative order troubled by the work of information mediation.

Technological development has always depended on human labor. When scientists and engineers supervised the laying of telegraph wires under London, over much of the kingdom, and across oceans to connect the Empire, they constructed a system that relied on an ever-expanding workforce. The telegraph and telephone came to depend on the cheap labor of young, aspiring men and women. Their bodies—down to specific body parts—were foundational to the design of public utilities. Under the auspices

of the General Post Office, or GPO, British telecommunications developed as a state service whose workers made the largely intangible electric technology manifest and understandable.[5]

These new public servants were subject to a Victorian value system that put distinct emphases on communication networks. Telecommunications workers were entrusted with conveying the information of liberal subjects and in accordance with liberal demands. The practice of conveying and receiving information was central to the era's political innovations and to the conduct of economic and social life.[6] By controlling one's thoughts, personal interactions, consumption, and pleasures as an uninhibited actor, one developed the proper styles of presentation, cognition, and fortitude essential for an orderly public sphere.[7] The ideological division between the world of remunerative work and civic responsibility versus the private world of self-cultivation was necessary for the encouragement and practice of liberal notions of freedom. As the literary critic Lauren Goodland puts it, this meant an active commitment to "projects of liberating individuals from illegitimate authority while simultaneously ensuring their moral and spiritual growth."[8] The sanctity of information dovetailed with Victorian obsessions with privacy, resulting in a widely shared view that the written, typed, transcribed, and spoken word should be circulated as if it were wholly unimpeded and unmediated.[9]

Rigid distinctions between public and private spheres were impossible to maintain in practice, especially in a political environment where public order depended on personal character. The individual of liberal fantasy, who could easily navigate between the two realms as interest or duty demanded, was elite, gendered male, prone to lapses in character, and in constant need of all kinds of services to maintain his persona. Telecommunications workers bore much of the brunt of ensuring that liberal subjects were properly informed and that their information was suitably and securely conveyed.

The kinds of labor that went into producing the mobility, privileges, and knowledgeability of certain liberal subjects often remained as the Victorians wanted it: invisible. Service industries—professional, financial, bodily, and informational—constituted a broad sector of the British economy, and they have proved remarkably durable and prolific. Service providers engaged in necessary but often immaterial exchanges. Exploring the dynamics of these exchanges offers new insights into the kinds of agency that could develop among those who produced intellectual, cultural, and emotional capital for others.[10]

Telecommunications workers were crucial to liberal aspirations for ever more efficient streams of movement. Like sewage workers, park gardeners,

shop assistants, barmaids, and the butchers in London's newly covered meat markets, the telecommunications workers of the late nineteenth and early twentieth centuries were essential to the unobtrusive flows of modern life. When they resisted work discipline and challenged the flow of information, they rendered liberalism's practices of discretion visible and revealed the coercive, stratified, and unruly aspects of this regime. This left workers with a unique but tenuous set of resources with which to assert their own worth.

Telecommunications workers did not just embody information systems: they used their perception, knowledgeability, and emotions—and their hands, eyes, and ears (and occasionally other body parts)—to contest and reshape the meaning of their work and their economic position. I describe these dynamics as "bodied labor:" the active negotiations between workers and the powers they are subject to. In contrast to "embodied" labor, which tends to denote the imposition of a labor regime's inherent values onto or into workers, bodied labor foregrounds human engagement. Even as they became both the tools and the targets of a growing surveillance state, telecommunications workers found the means to alter some of the trajectories intended for them by officialdom. Bodied labor describes the ruptures, pushback, and many ironic consequences that ensue when sociotechnical projects and human bodies collide. In the case of telecommunications workers, thinking in terms of bodied labor reveals that discretion was at the heart of the struggle among administrators, users, and workers to define the value of information service work. The forces unleashed by this struggle helped create a modern and distinctly British communications order.

A bodied-labor history of telecommunications requires the incorporation of many contingencies. London's social geography, both as the hub of Empire and as a city seemingly experiencing both unparalleled growth and unspeakable degeneration, shaped the structure of telecommunications systems and their labor force. Affluent urban consumers relied on these systems to maintain their own prestige and security. The social realities of telecommunications workers, their goals and associational politics, and the particular gender dynamics and sexual undercurrents of their work were shaped by the industry's requirements for discretion. Their creative responses were often self-defeating. Still, the work cultures of the telecommunications industry reflected a dynamism that has perhaps been missed in other histories attentive to biopolitics. Telegraphists, telephone operators, and telegraph boys informed how information technologies suffused and helped reshape British liberalism between the 1870s and the First World War.

Imperial grandiosity characterized popular depictions of telegraphy in the nineteenth century. In an article on London's new Central Telegraph Office in 1876, the journalist John Munro observed that "telegraph lines are the nerves of the world. . . . [W]e see them radiating in all directions, from the capital to the remotest hamlets, much in the same way as the nerves issue from the brain; and if we include the habitable world in our scan, we shall find them straggling by devious routes to the utmost parts of the Earth."[11] Historians of telecommunications have often followed suit, asserting the centrality of wired, high-speed information networks to global trade, finance, governance, cultural exchange, and war.[12] Britain's nineteenth-century telegraph network has been studied as a technology of imperial dominance, instrumental to the expansion and maintenance of colonial rule, but also as a target of imperial resistance and appropriation.[13] The telegraph, as Munro reminds us, was indicative of culturally embedded regulatory powers, expressed in metaphors of bodily circulation and flow.[14]

The metaphors and evocations of an all-encompassing, centralized system of electric intercourse obscure a more complex reality.[15] It would have been obvious to contemporaries, for example, that access to telegraphy and telephony was not universal but depended on wealth, education, occupation, and geography.[16] Londoners' access to new technologies was markedly different from that of rural, suburban, and urban Britons.

While Manchester, Liverpool, Newcastle, Penzance, and Dublin were the sites of certain innovations in information work, London's role in the forging of an imperial telecommunications network and labor force was unique.[17] The city dominated both the production and the dissemination of electric communications, from wire manufacturing to the international network hubs established by the GPO telegraph service.[18] Administrators envisaged a global telegraph system wired through London exchanges. The expansion of telephony was more complex: competition between private companies evolved into a heavily regulated monopoly, fully nationalized in 1911. Telephone use was likewise concentrated in and centered on the capital. Late Victorian and Edwardian London was the first iteration of the city's "unparalleled global connectivity," a status that London's financial districts would reclaim by the start of the twenty-first century.[19]

Service industries, including telecommunications, are multifarious, underhistoricized, and resilient economic drivers.[20] As C. H. Lee argued in

the early 1980s, the concentration of services in the southeast of England in the nineteenth and early twentieth centuries demonstrated that they were not "derivative developments generated by industrial growth" but had dynamics of their own and were tied to wealth concentrations and economic processes distinct from industrial production and its attendant class forms.[21] Economic power, intellectual capital, cultural acumen, aesthetic value, and political influence accumulated in areas where services were concentrated. Despite the seismic shifts in British economic and social life elsewhere, London remained the center of power. Its telecommunications system was both an expression of this power and constitutive of it.

In the organization of both the telegraph and the telephone networks, problems affecting London often resulted in national solutions. This was true of labor as well as technology: administrative attempts to control the capital's troublesome employees resulted in nationwide disciplinary campaigns. At the same time, network design and gendered divisions of work varied significantly between London, provincial towns, and rural communities. Female postmistresses were not uncommon in small towns, for example, and female telegraph messengers appeared in rural landscapes here and there throughout the late nineteenth and early twentieth centuries. In British cities, by contrast, administrative anxieties about the dangers of urban street culture and city life—especially after dark—resulted in parameters designed to protect women and boys from commuting and working at certain times and places.[22]

London's influence on the shaping of British electric networks was further manifest in the parallel narratives of success and decline that characterized the city in the latter half of the nineteenth century.[23] Celebrations of its massive infrastructural developments—including those for the new underground railway system and the Thames embankments—existed alongside countless evocations of the perils of its dilapidated neighborhoods, the blind alleys of a morally and physically toxic city.[24] *Serving a Wired World* embraces a multifaceted approach in teasing out London's transformations and their effects on the rest of Britain's telecommunications up to the first years of the Great War.

SERVICE LABOR AND PROFESSIONAL MEDIATIONS

While this study mainly resists a teleological analysis of London's communications networks, I believe there are some underexamined legacies of the work of telecommunications in the late Victorian period. In narratives of

modernizing labor, telegraphists and telephone operators have usually been slotted uneasily between industrial automatons and lower-middle-class clerks. Such ambiguity is in fact the defining feature of much information-service work, because aspects of it were (and are) both necessary and dangerous to social ordering.[25]

Information services are one component of a much larger service economy that encompasses occupations ranging from bank executives to street cleaners and all conventional ranks of wealth and social affiliation. This catch-all category, based on economists' traditional definition of *services* as any employment that does not result in tradable physical products, was a highly significant sector of the British economy. By the 1860s, 31 percent of the British workforce was involved in transport, distribution, banking and commerce, professions, government and defense, and "miscellaneous" services, and this figure grew to more than 41 percent in the 1910s.[26]

Understanding service industries, their stratifications, and the social and spatial contours of service-driven economies requires sharper distinctions and perhaps entirely new categories.[27] For example, both doctors and household servants fall under the category of service workers. Both often provide highly intimate services to their clients or employers, yet doctors usually occupy the middle to upper echelons of society. What separated doctors' work from that of personal servants in the nineteenth century was the directional flow of social capital.

Most personal service work produced intangible aesthetic, intellectual, physiological, or emotional value for the consumer but left the provider in a more tenuous position. Sometimes the very knowledge required to provide services—insights into traffic patterns or food preparation and delivery, awareness of physical ailments and emotional states, knowledge of how to enhance features or remove blemishes, the ability to provide pleasurable entertainment while hiding evidence of excess, or the power to channel private discourse through public networks—threatened to be detrimental to the consumer's processes of respectable self-fashioning if it were publicly rendered.[28]

In a social order based on "character," defined by self-control, discretion was a virtue of service provision. The more intimate the encounters between service providers and consumers, the more unsettling and volatile the relationship became. One response to the potential threat posed by the intimate knowledge held by service workers was to marginalize the work and render the workers socially invisible. Doctors escaped this tactic by wielding highly

specialized and uniquely valuable knowledge (ultimately, the power of life and death), and—by the nineteenth century—enacting this knowledge through formalized displays of expertise. In other words, doctors (and other elite service providers) performed professionalism. This is a crucial distinguishing variable in assessing the status, monetary value, and social leverage of service work and one that has been recognized as a powerful value marker with many complex histories.[29]

Claims to professionalism and its attendant respectability shaped many of telegraphists' and telephone operators' interactions and disputes with officials, the public, and one another. For these workers, the fusion of technical prowess with multiple forms of literacy, along with the requirement of discretion, meant that they performed intellectual, not mechanical, labor. They saw themselves as respectable professionals who should be paid as such and entitled to privileges in the new information bureaucracy. Administrators and many public observers thought differently: they emphasized the unobtrusive, passive, repetitive nature of the work. The classes who ran and used the telegraph and the telephone networks, used to inferior social beings performing all kinds of personal services for them (often in close proximity to their bodies and utterances), tried to ensure that the work of information mediation remained marginal. This book explores how workers, administrators, and consumers all celebrated the new information technologies even as they imparted very different meanings to the daily performance of telecommunications work.

AFFECTIVE MEDIATIONS

Telecommunications workers were mediators who negotiated thresholds of privacy and transparency between the burgeoning telegraph and telephone systems and very specific sectors of the public. Telegraphists transcribed private communications into electrically transmittable code, continually managing machines, symbols, language, and people; the boys who delivered the resulting telegrams manifested the new technology on city streets and brought it to consumers' doorsteps; telephone operators' disembodied voices interacted with the disembodied voices of subscribers in telephone exchange systems. All of these encounters required careful supervision, technical manipulations, highly specialized knowledge, awareness of public expectations, and the management of public frustrations and demands. In these

respects the labor of telecommunications workers was aligned with that of other workers, past and present, engaged in what has variously been described as emotional, intimate, caring, or affective labor.[30] To apply this insightful line of enquiry to past labor practices in the information industry—whether to illuminate the processes leading to our present moment or to properly distance past work cultures from current ones and thereby uncover alternative mechanisms of change—we need to distinguish the historical contexts out of which affective information service work emerged. Affective interactions between telecommunications workers and consumers—and between workers themselves—illustrate the extent to which competing ideals were manifested in communications systems and how human exchanges defined the parameters of information systems.[31]

Telegraphists, messengers, and telephone operators had to combine established forms of personalized deference, based on interactions between affluent subjects and domestic servants, with new demands for public accessibility, standardization, and expertise. These workers were thus central to shifting meanings about what "public service" meant and what it was worth.

GENDERING TELECOMMUNICATIONS

Gender was crucial to the ordering and imagining of telecommunications. The introduction of women to the telegraph service intensified administrators' and consumers' perception of telegraphy as cognitively disengaged and automatizing. Female telegraphists were the first women to join the British civil service and the vanguard of female clerical or "pink-collar" labor in Britain. These types of employment fundamentally altered work expectations and provided new opportunities for women as laborers, consumers, and public figures. However, the history of Victorian communications also exposes the deskilling of "feminized" labor as a result of technological development and social pressures.[32]

However symbolically potent in Victorian telegraphy—and foundational to historical narratives of women's advancement in the workplace —women telegraphists remained a minority presence within the industry. This was a manifestation of Victorian gender ideologies and social aspirations merged with industrial discipline. Administrators and engineers asserted gendered working parameters and hierarchies.[33] Men and women competed for resources and prestige.[34] These contestations were also evident in the arrangement of

wires in metropolitan telegraph offices and beyond. Attempts to manage mixed-gender spaces often resulted in workers' agitation, which ultimately strengthened male claims to proficiency and caused employers to place constraints on women's labor. Telegraph offices were some of the first sites where women and men performed the same highly technical work, and the efforts of male telegraphists and administrators to resist this trend and maintain wage differentials reveal the profoundly gendered structure of the early information industry.

Another wave of technological innovation produced quite different results. As telephone usage increased among elites, female operators quickly came to dominate the telephone exchange's workforce. As an Edwardian telephone supervisor stated, "Telephony is essentially women's work." The perceived virtues and vices of the telephone rested on this assertion.[35] Female operators found themselves negotiating multiple boundaries between public utility and private interactions, and between networks of elite men and aspiring lower-class women. They enabled exchanges of all kinds while asserting their own claims to professional respectability.

SEX AND TELECOMMUNICATIONS WORK

For some telecommunications workers, sexual encounters, innuendo, and imaginative possibilities between themselves and information consumers were a direct consequence of the personalized service demanded of them. Concerns about the erotic potentialities of early electric communication systems were reflected in administrative attempts to monitor and direct workers' interactions with consumers. These concerns further underscored communications workers' struggles to claim authority and their own sense of value in their daily interactions.

A favorite anecdote among officials, often recounted by journalists in the 1870s, was a telegraphic romance. *Chambers's Journal* had perhaps the most vivid rendering of this tale: "Can the telegraph make love? . . . Yes! Most emphatically." A Central Telegraph Office male operator in charge of the Berlin circuit had regular contact with his female counterpart in the new German capital, and "as time went on, these two began to know something of each other through daily telegraphic intercourse."[36] The double entendre confirms what Kate Thomas has identified as the imaginative sexual possibilities in the Victorian postal communications, a promiscuous system that