

## The Infrastructure of Intimacy

Mr. Watson, come here. I want you.

—Alexander Graham Bell<sup>1</sup>

**T**his essay brings together two different rubrics that are animating recent strands of critical analysis: intimacy and infrastructure. Its point is as simple as calling attention to a telephone wire—or these days, to a cell phone tower: that infrastructures are involved in social relations and, in many cases, shape the conditions for relational life. Intimate relations involve places—the example in this essay is the public latrine—or conduits—like the telephone or computer discussed below. But the infrastructure for intimacy reaches beyond the specific forms of the SMS or the WC. Tracing circuits of pipes and cables embeds intimate relations in unpredictable junctures of material and symbolic power.

The emergence of intimacy as an analytical term in studies of gender, sexuality, kinship, or social relations is likely more familiar to readers of feminist and queer scholarship than is a new attention to infrastructure in critical scholarship, an infrastructural turn (Amin 2014) occurring in a number of fields.<sup>2</sup> Infrastructure's chief referents lie in transportation (roads, ports),

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<sup>1</sup> This is a common report of Bell's first telephoned words to his assistant. Some consider the more accurate, if less catchy, version to be, "Mr. Watson, come here. I want to see you."

<sup>2</sup> The critical study of infrastructure emerged in an overlapping set of such fields as science and technology studies (Hughes 1987; Edwards 2003)—especially studies of computer technologies (Neuman 2006; Dourish and Bell 2007; Hincapié-Ramos 2010), the social history of technology, and geography (Graham and Marvin 2001; Malecki 2002; Sassen 2004; Warf 2006)—and has resonance with new materialist theories (Grosz 2001; Kockelman 2013). Ash Amin sees in urban studies "a new genre of thinking that narrates the social life of a city through its material infrastructure" (2014, 137). Infrastructure has become an organizing focus in such fields as anthropology (Larkin 2008, 2013; Datta 2012; Barnes 2014; Chalfin 2014) and to some extent in the humanities (de la Peña 2006; Robbins 2007).

energy (hydroelectric dams, power plants, pipelines), communications (telephone lines, cell phone towers), and water and waste (aqueducts, sewers, treatment plants) (Warf 2006). These systems are not routinely associated with intimacy; this essay suggests that they should be. One reason for attention to infrastructure is empirical: relationships take place in environments comprised of these material and immaterial, functional or failing networks. Understanding how infrastructures enable or hinder intimacy is a conduit to understanding the concrete force of abstract fields of power by allowing us to identify actually existing systems rather than a priori structures. Specific infrastructures have provided vehicles for a diversity of forces affecting embodied, relational life: colonialism and imperialism (Larkin 2008), US racism (Cooper and Oldenziel 1999), modernity (Edwards 2003), gender binaries (Penner 2013), homophobia (Leap 1999), chemical toxins (Murphy 2013), development schemes (Rankin 2009; Elyachar 2012), neoliberal policies (Graham and Marvin 2001), and national security (“critical infrastructures”; Neuman 2006, 20). Infrastructure at the same time offers grounds for intimate publics (Berlant 1997, 1998), a focus of struggles for resources (Robbins 2007; Amin 2014), and material for affective attachment and symbolic meanings (Kockelman 2013; Larkin 2013); people are thought of as infrastructure when the state uses them for development (Rosenberg 2015) or when their everyday efforts enable what failed infrastructure cannot (Simone 2004), while failed or bygone infrastructures provide the landscape for much living (Biss 2009; Gordillo 2014).

Infrastructure involves the very norms that queer and feminist scholarship excavates so ably. It aims for the invisible, taken-for-granted status of the best ideology: when infrastructure works as it should, we often stop seeing it (Star 1999). The material stakes of infrastructure make it an ideological object, while, arguably, the ideological stakes make it material. Infrastructure is also a shortcut to political economy: the great divide between socialist, social-welfare, and neoliberal programs concerns public provisioning of such goods as water, sanitation, transportation, and communications. There is power in the sewer.

This essay’s other argument for studying the infrastructure of intimacy is that these rubrics are analytically compatible with feminist and queer scholarship. What is a virtue of infrastructure for critical scholars is a source of frustration to some infrastructure professionals: that is, its unbounded meaning, rather like the term *intimacy* itself. Even in trade publications, conceptions of infrastructure are more expansive than the concrete image of a power station suggests. The proceedings of a symposium on the design and management of infrastructures works with the broad understanding that “infrastructure is the essential framework in which all societal everyday activities takes place” (Ehrenfeld 1999, ix). At times, the professional writing about

infrastructure can be hard to differentiate from critical scholarship. But the infrastructural turn in scholarship activates the openness of infrastructure's meanings even more, emphasizing the capacious meaning of *what something requires to function*: "a particular kind of instrument, often spatially diffuse or distributed, that is essential to, but remains in the background of, more focal interactions and events" (Kockelman 2013) or "the vast network that makes possible the movement of goods, people, and information over time and space" (Warf 2006, 258). Much of the infrastructural turn can be credited to the feminist scholar Susan Leigh Star and her vision of infrastructure as "an embedded strangeness, a second-order one, that of the forgotten, the background, the frozen in place" (1999, 379). Learning from a surprisingly amenable technical literature, and from infrastructures themselves, these studies rely on a baggy notion of infrastructure that combines material and symbolic domains, eschews technological determinism, and recognizes both systematicity and failure.

This essay suggests that critical studies of intimacy are animated by analytical desires for ways to embed social relationships in fields of power that rely on complex, nonreductive understandings of materiality. Infrastructure offers one outlet for these desires. The constructionist attention to infrastructure outlined below illustrates the rich material-symbolic assemblages that are contexts (restrooms), conduits (phones), and material conditions for intimate relations. By presenting an introduction to thinking about the infrastructure of intimacy, this essay proposes a research agenda for studying conditioning contexts for social relations in ways that can concretize the operations of such abstract systems of power as neoliberalism, imperialism, or homophobia.

### **The radiator's hissing, still I need your kissing**

The vernacular term *intimacy* has taken on a number of roles in critical scholarship, with particular relevance for feminist and queer studies. Intimacy commonly provides a synonym for a concept of proximate, close relations: local, microlevel, private, embodied, involving the psyche. Intimate relations are "relationships that are—or give the impression of being—physically and/or emotionally close, personal, sexually intimate, private, caring or loving" (Constable 2009, 50). In prevalent analyses of modernization, intimacy offers a convenient way to demarcate the familiar distinctions between public/private and local/global. In these uses, the intimate stands apart from the state and the market, often contrasting the authenticity of local life with external impositions; that is, modern, Western, or capitalist forces invade intimate life. These discussions presuppose that intimacy belongs to the local level or the private sphere.

By contrast, feminist and queer scholars have used intimacy as an analytical device to counter the understanding of the intimate as a private, local realm until it is penetrated by external forces (Berlant 1998; Shah 2011; Wilson 2012). This work understands intimacy itself as a domain of power and a construct: in other words, as a primary domain of the microphysics of power in modern societies (Oswin and Olund 2010, 60). Extending the classic feminist insight that intimate relations are already inextricable from, and realized through, larger relays of power, such analyses demonstrate how larger forces produce private, proximate, and personal domains and distribute resources unequally across differently valued relations. Public/private, local/global, personal/political—these trenchant binaries and their gendered associations were carved out by economic, political, and intellectual currents (Folbre 2009) and realized in built forms (Teyssot 1988; Colomina 1992; Grosz 2001). “The modern device of intimacy,” Georges Teyssot writes, “unfolded in the domestic space of the family” in Europe from 1750 to 1850 (1988, 93).<sup>3</sup> Capitalist modernity, and its intellectual advocates, produced the commonsense view that the private, domestic, and feminine sphere is nonproductive and economically irrelevant (Folbre 2009). Indeed, the separation of public and private spheres constitutes modernity.

Thus, as Ann Laura Stoler writes, “To study the intimate is not to turn away from structures of dominance but to relocate their conditions of possibility and relations and forces of production” (2006, 13). Stoler and Lauren Berlant’s articulation of this critical take on intimacy has influenced a wide swath of scholarship. By casting intimacy as a public and political mode of relationship, Berlant argues that intimacy has been privatized in twentieth-century liberal society in ways that valorize normative forms of domestic intimacy—notably, white heterosexual nuclear families—while eroding the intimacy of public democratic life (Berlant 1997, 1998). Such views use intimacy as a rubric to illuminate the broad operations of political economy, labor, or governmentality. Therefore, for example, in relation to globalization, “the intimate functions not as an opposite to the global, but as its corrective, supplement, or its undoing” (Pratt and Rosner 2006, 17).

This reach for intimacy reflects dissatisfaction with inherited terms for thinking about social relations, especially among scholars deconstructing sexuality as a domain of knowledge or identity. Most famously, Michel

<sup>3</sup> In the West, the meaning of *intimacy* evolved from spiritual to secular relations. An older European meaning of *intimacy* referred to the relationship between a Christian and God: that is, intimacy was manifest in spaces for prayer and penitence (Teyssot 1988).

Foucault (1978) argued that the formation of the category of sexuality as a real phenomenon to be measured, known, and felt subjected people to modern social power rather than liberating them. The hope is that the colloquial term *intimacy* might avoid reproducing pitfalls now associated with concepts like sexuality or gender (Oswin and Olund 2010; Wilson 2012)—such as reifying female identity, relying on a heterosexuality/homosexuality binary, or assuming that true selves lie beyond power—while still allowing scholars to study recognizably erotic and gendered realms, including reflection about their categorization in the same analytical frame.

The desire to resist forms of knowledge that perpetuate or rationalize global inequality (e.g., ideological reifications of family, sexuality, community) motivates the use of intimacy as a rubric. Because it is a flexible, provisional reference that emphasizes linkages across what are understood to be distinct realms (scales or entities), intimacy is a placeholder (Wilson 2012). It allows analysts to look at relational life, including the feelings and acts that comprise it, in relation to colonial empire or capitalist modernity, without a fixed analytical definition (Shah 2011). I see similar motivations in the new attention to infrastructure in ways that make this banal rubric a resource for the critical examination of intimacy as a field of power.

### **Get a room**

Studies of intimacy are critical because they emphasize the exegesis of power, including sensitivity to the power of theories and terms. As such, they have to contend with problematic uncertainties of historicity, materiality, systematicity, and agency raised over the past several decades. The reframing of power away from sovereign states to diffuse networks concerned with bodies and populations that operate through discourse has provided one of the most productive courses through this analytical flux. Much recent analysis of intimacy argues that disciplinary power, governmentality, or biopolitics—chiefly in the form of discourse—use intimacy to regulate bodies and populations in ways that distribute life chances unevenly (Povinelli 2007, 2011). The introduction to one journal’s special issue on intimacy suggests that the subject offers “a primary nexus of biopolitics and sovereignty” that is “not only the sphere of individual subjectification, but also a site for ordering populations” (Oswin and Olund 2010, 62). Elizabeth Povinelli (2007, 2011) and Berlant (1997, 1998) show how law, policy, and popular media in liberal Anglo settler societies distribute resources according to evaluations of worthy and unworthy forms of intimacy. Given the discursive understanding of power, such stud-

ies of intimacy often hover over norms, logics, or taxonomic binaries: that is, how regimes of power categorize intimacy and the affective consequences of those categorizations. As a methodological choice, this focus has the virtue of avoiding an economic determinism that would reduce symbols, ideas, and feelings to capitalist arrangements. It also allows for an object pluralism that is able to attend to an array of entities (e.g., animals, things) in a range of relations (nonheterosexual, nonfamilial). But normative discourse is not the only route by which power realizes its intimate reach. In practice, analyses that excel in excavating discourse, norms, or logic often leave physical structures untouched, leave governmental agents unspecified, and let capital flow in a diffuse hypermobility. Thus, this method may not satisfy analysts of intimacy who focus on capitalism, the state, or matter, or who are as interested in how intimate relations are enacted as in how they are defined in contexts produced by power.

Other studies of intimacy highlight political economic qualities. Notable are discussions of the “commercialization” of intimacy: “the ways in which intimacy or intimate relations can be treated, understood, or thought of as if they have entered the market” (Constable 2009, 50; see also Boris and Parreñas 2010; Zelizer 2010). Commercial uses of intimate relations confound sedimented distinctions between the public and the private. Intimacy seeps into waged labor; payment seeps into intimate relations. This represents a crossing of the separations created in Western modernity between public and private, economy and life, rationality and sentiment (Wilson 2004; Folbre 2009).<sup>4</sup> Eileen Boris and Rhacel Salazar Parreñas (2010) define “intimate labor” as the labor involved in forging and sustaining interpersonal ties and caring for people’s needs. Melinda Cooper and Catherine Waldby’s (2014) study of “clinical labor” suggests that non-unionized intimate labor in the form of independent contractors is emblematic of labor more generally. The political-economic materiality of this work resonates with much work on infrastructure. But its materialism centers, naturally, on labor relations and on the articulation of capital with affective and embodied work that extends patterns of gender, race, and class inequalities—not on asphalt or wires.

Across differing methods and theories, the critical uses of intimacy I have outlined share analytical tendencies in accounting for how affectively laden social relations articulate with capitalism and governance. Most strive

<sup>4</sup> Crucial to the formation of public and private spheres in modernity is the specific form of chattel slavery in the Americas, with its various forms of intimate exploitation that generated economic domains of productivity and consumption, market and home, in racialized ways.

to avoid a material determinism that reduces social arrangements and symbolic operations to a material base by attempting to describe symbolic and material domains as combined (or inseparable). They work to resist narratives presenting a teleological (Whig) forward march of history, emphasizing an it-could-have-been-otherwise contingency. They recognize a range of intimate relations (nonheterosexual, nonbiological) that increasingly includes connections with nonhuman parties (animals, objects) (Rosenberg 2015). In *Economies of Abandonment*, a work of social theory about the distribution of provisioning and life chances under neoliberalism, Povinelli identifies this problem: “how to address substance, materiality, and embodiment without treating substance as a singular, stable, independent, and ultimate referent of an immovable and unmoving being against which social and culture forces brace, qualify, quantify, or relate” (2011, 106). These mandates set an ambitious agenda, particularly for empirical research and writing concerned with capitalism, materiality, and people.

Meeting these varied analytical demands by creating new descriptions of the spaces and conduits for intimacy is more difficult than it might sound. How to describe domains of governance without reifying the state, capitalism minus echoes of a base-superstructure model, matter without essentialism, material without determinism, humans without anthropocentrism? These remain more challenging in practice than available theoretical solutions suggest, particularly when the scope reaches beyond the register of discourse. Povinelli meets the challenge of avoiding essentialist substance while describing bodies, buildings, and inequality by focusing on what is left behind or excreted from discursive regimes, or what she calls carnality. My proposal relies on a different sense of *material* that is more guided by its empirical associations.

This essay proposes infrastructure as a pedestrian vehicle for addressing the ambitious analytical desires of studies of intimacy. Just as the open-ended use of intimacy provides an alternative to the criticized concepts of identity, critical studies of infrastructure—which is itself a commonplace and fluid term—offer a different route to understanding intimacy in critical terms by empirically tracing circuits of power, norms, and agency that are realized in particular modes of relations.

### **The water closet**

A famous site where infrastructure meets gender and sexuality is the bathroom, particularly the public restrooms that are a hallmark of modernity. The bathroom, the site for elimination (as well as for changing clothes, freshening one’s appearance, or changing diapers), embodies regulatory norms

for bodily capacity and corporeal intimacy. Dependent on functioning water flows and sewage systems, this modern restroom is a hallmark of civilizational comfort: conversely, little marks a place as backward more than the absence of operational facilities for elimination using plumbing and sewage. Night soil is not modern.<sup>5</sup> The modern bathroom has been a fulcrum in political controversies. The homosocial public toilet has also offered a venue for men seeking sex with men, transactions known in different national English lexicons as the “tearoom trade” or “cottaging,” echoing an old association between “male homosexuality and public conveniences” (Andersson and Campkin 2009, 208; see also Leap 1999).<sup>6</sup>

The predicate for most public bathroom facilities is “urinary segregation,” the clear differentiation between male and female (Case 2010). Gendered elimination is hardly a universal human experience, however. Before European modernity, most public sites for elimination were shared across genders, and they remain so in many poor parts of the world (and, of course, in private homes). Olga Gershenson and Barbara Penner (2009) note, “Private, sex-segregated lavatories were a modern and Western European invention, bound up with urbanization, the rise of sanitary reform, the privatization of the bodily functions, and the gendered ideology of separate spheres” (4–5). When public latrines were built in Europe and its settler societies, they were only for men until the nineteenth century (Gershenson and Penner 2009; Molotch 2010; Penner 2013). The gender schema for private entities’ public facilities involved other differentiations of class and, most famously, of race. The well-known segregation of public facilities in the United States and South Africa involved separate interfaces with water, waste, and other infrastructures in ways that confound a blunt gender binary. When the Pennsylvania Railroad hired black women workers during World War II, it viewed them as interchangeable with male laborers and did not provide sex-specific restrooms for black workers (as it

<sup>5</sup> This section focuses on modern public restrooms because they are much discussed in feminist and queer scholarship, particularly writing relevant to intimacy. If space permitted, comparative discussions of the design, use, meanings, and politics of sites for elimination in poorer non-Western nations would highlight the specific and variable infrastructures of night soil and water closets and their implications for intimacy (Anderson 2010; Datta 2012; Chalfin 2014).

<sup>6</sup> Apart from the bathroom as a site for chiefly male-male sexual relations or their suppression, queer life has exhibited other patterned relations to infrastructure, including the location of queer venues in nonresidential zones oriented to transport or industry or associations of queer life with “the ruins of the urban landscape” (Andersson and Campkin 2009, 214) and the decaying infrastructure of defunct industries or neglected public sites.



did for white workers) until pressured to do so (Cooper and Oldenziel 1999). The limits of bifurcated gender facilities have been pointed out by second-wave feminists, leading to calls for “potty parity” (Case 2010, 212) for males and females, and, recently, by trans\* advocates, who have called for safe access to public bathrooms (whether through the creation of single-user or gender-neutral spaces) (Molotch 2010).

As a locus for an institutionalized gender divide (and its intersectional expressions) and for the tearoom trade of male-male sex, public bathrooms have been the subject of feminist, transgender, and queer writing. Following Mary Douglas’s (1966) analysis of dirt and pollution as forceful classificatory schemas, as well as psychoanalytic and semiotic interpretations of bodily waste, queer scholars have interpreted the meanings of these structures beyond their mere role in managing human waste: “The locus of functional attention to culturally abjected bodily functions always necessarily functions in excess of a logic of mere functionality” (Edelman 1996, 152). As Lee Edelman writes, bathrooms are set apart by gender “to provide a culturally designated ‘privacy’ in which to respond to the body’s demands” (1996, 153). The public bathroom is a form and effect of psychically laden discourse that reproduces a sexed binary. An experimental architect notes, “Public bathrooms . . . are based on a Freudian model, where women’s bodies are men’s bodies that lack a penis” (Schweder 2009, 184). Or as Sheila Cavanaugh puts it in her reading of the gender logic of public restrooms, *Queering Bathrooms*, “The modern toilet engineers a truth about the body and its sex” (Cavanaugh 2010, 205).

These authors, among others, read gender-demarkated architecture as a site of representation that is a psychoanalytic symptom of both individual and social concerns and that produces subjectivity and deviant resistance, an approach characteristic of feminist and queer commentary. As the editors of a collected volume on restrooms explain, “Toilets are best seen as spaces of representation” (Gershenson and Penner 2009, 10). The infrastructure for bodily waste represents norms of social membership (e.g., according to gender and mobility). In public restrooms, the containment of elimination is linked to the regulation of sex—preventing heterosexual unions—and represents Western society’s psychic fear of dissolution; Cavanaugh calls this psychic structuring the “hygienic superego” (2010, 42). Edelman ponders the men’s room urinal and stall structure, wondering why penises are displayed publicly, given masculine homophobic imperatives that exclude homosexual contact: “Though clearly conceived as a technological response to the hygienic concerns associated with bodily necessities,” he writes, “the design of the men’s room, simply put, has palpable designs on men; it aspires, that is, to design them” (1996,

152).<sup>7</sup> More than mere settings, bathrooms here are objects of analysis. Both authors' method is to read symptomatically, locating in restrooms' established structure both its cause—the psychic-cultural motivations for that design—as well as its effects, its role in forming properly gendered and sexed subjects. (Cavanaugh's research supplements this psychoanalytic interpretation with interviews to convey how people who violate those norms experience public bathrooms.) Public restrooms also produce subjectivity, chiefly through the "laws of urinary segregation" (Lacan 1966, 119) or as modes of discipline. In *Discipline and Punish*, for example, Foucault considers the functioning of the design of France's military academy's toilets, with half-doors such that "the supervisor on duty could see the head and legs of the pupils, and also side walls sufficiently high 'that those inside cannot see one another'" (Foucault 1991, 171–72).

Although they discuss the architecture and design of public restrooms, these representational analyses do not investigate the infrastructural level qua infrastructure, as I mean it here.<sup>8</sup> Rather, as the historian of the telephone Claude Fischer (1992) puts it, this kind of thinking reasons from the property of the technologies to their consequences and extrapolates from their form to their causes. But do we know the relationship of the cultural meanings and effects of sex-segregated bathrooms to the infrastructural level itself (e.g., plumbing, lighting, partitions, porcelain, regulations, blueprints)? This relation of meaning to infrastructure is assumed: that is, the effects of separate bathrooms, which reveal them to be sites of power, also explain why and how that segregated form exists. As Star says, "Infrastructure is sunk into and inside of other structures, social arrangements, and technologies" (1999, 379). Exploring the design, installation, and operation of the bathroom likely does not contradict these symptomatic readings; rather, I suggest that they expand and relocate the relays of power. For example, much about the structure of the bathroom was formulated by manufacturers rather than the state (Penner 2013, 204). But specific government agencies regulate workplace, public nonwork, and

<sup>7</sup> Edelman also writes that the public men's room "gestures . . . towards an idea of interiority, towards a principle of containment, implicit in the architectural imperative that shapes the subject—forming and informing him as the subject of ideology—in its own monumentalizing image, modeling the subject as container of space through the articulation of structural, because structuring, identities" (1996, 152).

<sup>8</sup> Cavanaugh does offer a brief history of gender and urban public modes of elimination in modern Europe, a history Edelman's reading assumes as given. But her psychoanalytic and discursive reading of gendered restrooms does not emerge from, and is not dependent on, this historical background.

domestic facilities in precise and changing detail.<sup>9</sup> Below the federal level, building codes are modeled on international guides like the Uniform Plumbing Code or the International Building Code. These codes specify exactly how many toilets and urinals entities must provide and when there must be sex-segregated facilities or particular fixtures to facilitate physical access. Such codes are where sexual, gender, or mobility norms are installed in the architecture of elimination. For the most part, their mandate is not retroactive but applies to new buildings or remodeling.

To understand the sexuality of bathrooms, we can turn to Laud Humphreys's controversial microsociological study of male-male sex in public bathrooms in a Midwestern US city (St. Louis) in the 1960s (1970).<sup>10</sup> His work was focused on the communicative codes underpinning these illicit, criminalized exchanges to show that, if public bathrooms have designs on men (Edelman 1996, 152), these designs are often foiled by the tearoom trade. These are examples of what public health literature calls PSEs—public sex environments—or, in Australia, beats. Humphreys's work also gestures to infrastructure in ways that can expand queer and feminist analyses of gendered restrooms and male-male public sex. He explains that the features that informed the collective selection of sites for male-male sex reflected the desire for anonymity: popular sites allowed easy parking, were major routes for work commuters, and offered some visual protection (e.g., a lookout could watch people approach). Park restrooms offered these features. The men involved in masturbation and sex there repurposed these structures toward other ends. Most of these men were not identified as gay but as “normal” men engaging in deviant behavior. As Humphreys explains, the infrastructure of the restroom and the micropractices of these exchanges were shaped by the needs of nondeviant men engaging in deviant behavior, who needed easy entry and exit, anonymity, and an alibi. “Normal” men, who did not partake of more explicit gay venues, selected accommodating structures and deployed discreet codes that shielded their deviant behavior from police and acquaintances so that they would remain normal (Humphreys 1970). This queer use of the bathrooms was not built into their design but reflected a repurposing of structures that exist not as timeless features of the landscape but as a result of a history that includes ideology and psychic investments in gen-

<sup>9</sup> In the United States, two federal agencies regulate public restrooms. The US Department of Labor regulates workplace facilities through the Occupational Safety and Health Administration, while the Department of Health and Human Services regulates other public bathrooms.

<sup>10</sup> Humphreys's methods were accused of being unethical because he did not reveal his identity as a researcher and used invasive tactics to identify men for follow-up interviews.

der as well as racial and economic politics and even geopolitics. Both Humphreys's sociology and the psychoanalytic readings can be seen to offer an "experiential reading" of infrastructure, which interprets how the "embedding of a range of infrastructures into everyday space shapes our experience of that space and provides a framework through which our encounters with space take on meaning" (Dourish and Bell 2007, 416).<sup>11</sup>

Humphreys's informants knew that these Midwestern parks and their restrooms were built by government-funded Works Progress Administration (WPA) labor: as one told him, "The real turning point for the tearoom trade arrived with the WPA" (Humphreys 1970, 5). Massive New Deal investments aimed simultaneously to install infrastructural projects to develop the nation and to create jobs (mainly for men) that would support families and hence consumer spending.<sup>12</sup> This construction reflected commitments to extending US citizens' access to public space, to nature, and to indoor plumbing, yet not in race-neutral ways designed to reach black or Native Americans. The Keynesian program was also intended to stem socialist agitation. If we do not take the infrastructure itself for granted but instead ask, what makes these bathrooms?, we arrive at a significant racial and political economic history that expands the reading of the social meanings of the privy.

Indeed, in struggles for gender or racial equality—especially when women and nonwhites entered white male work worlds—and in advocacy for inclusion across physical ability or gender presentation, bathrooms have been a fulcrum (Case 2010; Molotch 2010; Penner 2013). White resistance to racial desegregation often galvanized around integrating toilets, including resistance from white organized labor and government agencies (see Cooper and Oldenzel 1999). In 1942, a change in plumbing code led a Western Electric Company plant in Maryland to desegregate its public facilities. The white union objected and went on strike. Because the United States was at war and the plant produced equipment for the military, the US Secretary of War took command of the factory to resume production of combat communication technology, overriding labor's demand for segregationist pol-

<sup>11</sup> Heather Love (2013) has also invited queer theory to pay attention to social research like that of Humphreys's, not merely to mine it for content to subject to queer analysis but as a model for queer interpretive work. Although I am using sociological work like that of Humphreys's to raise different questions about infrastructural materiality, my project here is compatible with hers.

<sup>12</sup> I drafted this essay in a state park funded by the US Keynesian policies of the New Deal and built by young men of the Civilian Conservation Corps, whose wages were sent home to support their families (and, in turn, boost the national economy).

icy. The result was not to genuinely integrate toilets but to replace de jure segregation in policy with de facto segregation in locker assignments: workers were assigned to blocks of lockers (with connected toilets) by race, keeping toilets racially separated in practice (Gershenson and Penner 2009, 6). In the postwar era, racial segregation of bathrooms involved reconfigurations of governance, de facto practice, and racism in relation to bodily proximity. For example, while both white and black men took part in the St. Louis tearoom trade in public restrooms, the St. Louis police also used restrooms as lookouts to surveil black activities in the parks (Humphreys 1970).

If sociology has studied toilets as sites of deviance, and queer theory has read them as symptomatic objects for cultural analysis, other approaches consider the infrastructural backdrop to queer sex as a focal point. Notably, Gayle S. Rubin's approach to the South of Market scene in San Francisco emphasizes such elements as zoning laws and property values. These, she says, more than the effects of HIV/AIDS, eroded the sexual culture based in that locale (Rubin 2011). In his memorializing account of male-male public sex, *Times Square Red, Times Square Blue*, Samuel R. Delany evokes the infrastructure of blue cinemas, where blow jobs and hand jobs were silhouetted against heterosexual porn films projected on the screen (Delany 2001). An eye toward infrastructure—toward the grids and structures of the built environment, transport, communications, regulatory systems—links blow jobs to urban planning and capital accumulation, revealing how official intentions can be betrayed by a plurality of uses, including the way men, transwomen, and sex workers repurpose public spaces for sexual transactions. Indeed, we can read the location of much of prenormalized gay life in the first world in relation to infrastructure: across the tracks, at the edge of town, in manufacturing zones away from residences, or in zones of decaying infrastructure (Leap 1999). And the fact that more than 50 percent of public conveniences in Britain have been closed down since 1995 (Penner 2013, 232) reveals not just norms, in the government reaction to the illicit repurposing of cottaging, but also the widespread structural adjustment associated with neoliberalism. Attention to the infrastructure for public sex leads to domains of normative power that are other than, but often compatible with, the symptomatic readings of psychic and cultural meanings.

### **Can you hear me now?**

The most obvious example of infrastructure's role in intimacy would be information and communication technologies, particularly in digital forms:

voice communication by telephone or Internet, e-mail, instant messaging and SMS, teleconferences, and data transmission. If the bathroom is a normative site repurposed for illicit intimacy, these technologies are vehicles that allow for intimate connections across spatial divides. The connection between digital technology and intimacy is apparent in popular culture. Consider the vital roles that cell phones and computer screens (and rotary phones before them) play in advancing the plots of movies and television shows. The 2013 film *Her* pushes an unfolding logic of the intimacy of our relations with computers to further limits, showing how a contracted writer of personal letters (mailed in envelopes through an unspecified postal system) develops a relationship with a new operating system, who herself evolves an affective, erotic agency that extends beyond ownership, embodiment, or, the film suggests, Newtonian physics.

In ways analogous to theoretical physics, communicative infrastructures collapse space and time between people in not always welcome ways. As Beyoncé sings in “Telephone,” her duet with Lady Gaga, “I should’ve left my phone at home ’cause this is a disaster” (although the 2009 song’s image of the phone as an implement for talking, rather than texting, in a dance club was by then an anachronism). Visual or phonic communication over long distances has become indispensable for sociality in most of the world. Indeed, cell phones have a greater import in places that lack land lines, as in many parts of the global South. As research on Japan shows (Ito and Okabe 2005), cell phones, SMS, emoticons, and digital stickers are creating new spaces for intimacy. Young Japanese heterosexual married couples who can’t afford a private residence deploy digital exchanges for private intimacies. In Asia (Berry, Martin, and Yue 2003; Mankekar and Schein 2013), as elsewhere, nonheterosexual or nonnormatively gendered people have found digital communication to be a useful vehicle. The place of information and communication technologies in social relations and alternative communities is probably the most studied infrastructure of intimacy, with a literature too vast to review here. However, I want to call attention to what I see as the salient infrastructural features for the rubric of intimacy.

The computer, the telephone, and before these, the telegraph, were innovative technologies enabled by new infrastructures. Telecommunications infrastructures have changed since their late-nineteenth-century origins—with the breakup of large quasi-monopolies, the move to mobile phones, the rise of texting and social media. Systems that allow communicative interactions across space change the territoriality and temporality of social relations, yet they do not abandon material presence. (Indeed, as Nicole Starosielsky [2015] shows, global communications deeply depend

on fiber optic networks that are far more centralized, physical, and historical than discourses about digital flows suggest.) Communications systems involve labor: in the case of Ma Bell, gender and race were critical elements of the rote work of rank-and-file telephone operators (Green 2001). They involve materials located in space: “The cables and routing centers of the Internet have specific coordinates on the earth’s surface, even if users of the network seldom give much thought to where their bits are going” (Hayes 1997, 214). We need not give them much thought because communication infrastructures have become nearly invisible, as wireless, satellite, and oceanic cable systems provide the translocal links for social life. Indeed, infrastructure often aims to be invisible. Ubiquitous computing (ubicomputing) is “designing systems that weave into the fabric of everyday life and disappear in the background of users’ attention” (Hincapié-Ramos 2010, 465). This invisibility makes infrastructure both a material manifestation of ideology—it takes the form of an unexamined background—and a governing force in ways that suit an analysis of power as top-down, sovereign, or external to affected people. “As large, force-amplifying systems that connect people and institutions across large scales of space and time,” Paul N. Edwards writes, “infrastructures seem like paragons of modernity understood as a condition of subjection to systems, bureaucracies, hardware, and panoptic power” (2003, 221). A sociopolitical reading of infrastructures emphasizes the way that they “drive and maintain standardization, reflect and embody historical concentrations of power and control, and are instruments through which access is managed” (Dourish and Bell 2007, 96).

But most of these studies reject a notion of infrastructure as a systemic manifestation of homogeneous penetrating power. The invisible quality of infrastructure can be achieved “only in the context of well-understood practices and only through continual efforts of management and maintenance” (Dourish and Bell 2007, 417). From a prolific engineer, we hear that “things work because they work in a particular configuration, at a particular scale, and in a particular context and culture” (Petroski 2006, 167). Communication systems illustrate the polyvalent relationship between intimacy and infrastructure. Telephonic or digital infrastructures are complexly layered. Even the symbolic coding of digital media involves layers of infrastructure in the form of networks, facilities, equipment, and fixed investments that facilitate electronic interaction (Malecki 2002, 402). Understanding infrastructure as a network linking various nodes allows us to recognize a plurality of sites where material systems (and their failures) are entwined with social relations and with a complex interplay of structure and agency (Star 1999).

The centrality of distance-crossing communication to personal relations is by now taken for granted, at least where the technology works. Yet this personal use was not inherent to Alexander Graham Bell's design. The manufactured telephone was not intended for social intercourse but for business, government, and private emergencies. Telephone companies resisted the use of phones for personal conversations (Fischer 1992). AT&T instructional films did not emphasize "telephony's intimate inter-subjectivity" but instead encouraged restraint (Scott 2011, 489). Ordinary users—especially women—repurposed this technology in ways that altered its meaning and operations and made everyday personal use more central (Fischer 1992). Before users' appropriation of this new technology, telephone infrastructure met with resistance. When telephone poles were installed across the US landscape, angry residents at first cut them down. This resistance to the physical intrusion eventually dissolved, and the poles became a fixed feature in our environment. Telephone poles were then used to lynch black men. In "Time and Distance Overcome," Eula Biss writes, "it was only coincidence that they became convenient as gallows, because they were tall and straight, with a crossbar, and because they stood in public places" (2009, 8). Peculiar institutions and their legacies deploy infrastructures in ways that combine legal and extralegal practices, physical properties ("tall and straight"), and intended and unintended uses. Infrastructure is repurposed toward intimacies we cherish and toward those we don't.<sup>13</sup>

The approach to infrastructure I describe here moves in a different direction both from symptomatic readings that extrapolate cultural and psychic meanings from technological form and from approaches that reduce the distribution of material resources to the discursive distributions of value (or normativity). Infrastructure researchers drill down to depths that are both literal and figurative, to fiber-optic cables and software programming, sewage and building codes; they also trace outward, to connected series of people, discourses, and things. These approaches mix human and nonhuman agencies to various debated degrees and examine structures rang-

<sup>13</sup> There are ample examples of the unintended or repurposed uses of communicative infrastructure to facilitate varying modes of relations. The designers hired by the US military to create a virtual network to evade detection, called Tor (for The Onion Router), went on to create a nongovernmental, publicly available version allowing people to evade surveillance by states or others. Users include men circulating child pornography but also victims of domestic violence (chiefly battered women) to avoid being tracked by their assailants. Gay men at risk for state surveillance, for example in parts of Asia, have deployed a range of strategies for digital privacy, including torrent-sharing programs and the use of servers in less restrictive countries (Berry, Martin, and Yue 2003).



ing from physical materiality to front-office operations.<sup>14</sup> The late Susan Leigh Star, in her influential 1999 article “The Ethnography of Infrastructure,” calls her approach a structural inversion that foregrounds not just the effects of information technology on users but “the truly backstage elements of work practice” that illuminate how social forms are written into the architectonics of information technology (380). Her article offers a template for identifying qualities relevant to the social analysis of infrastructure. The way that functional infrastructure “does not have to be re-invented each time or assembled for each task, but invisibly supports those tasks” (380) Star calls transparency. People, of course, learn how to use this infrastructure, an education that is embedded in social membership and involves patterns of relationships.

Infrastructure is also what Star calls embedded, that is, “sunk into and inside of other structures, social arrangements, and technologies” (1999, 379). The design and use of infrastructure is not *sui generis* but involves preexisting conventions and materials—legacy infrastructures—that condition its operation. Indeed, long-distance digital communication is based on telephone technologies and standards: “We are pouring data through channels that were designed to carry human conversations,” says one author (Hayes 1997, 218). But then, “the telephone system itself encodes voices in digital data, so that we have data masquerading as voice masquerading as data” (Hayes 1997, 218). Star models an enduring approach for studying the complexity of infrastructure in terms of relations (which have, since Star’s writing, been extended to involve even more varied intimacies between humans and nonhumans; Murphy 2013), and she provides a model for understanding how intimacy is enabled or thwarted by infrastructures more generally.

### **Hello lamppost, whatcha knowing?**

As I hope the examples of toilets and phones have shown, infrastructure offers a useful category for illuminating how intimate relations are shaped by, and shape, materializations of power: it offers a vehicle for translating (operationalizing) broader theories of power, system, materiality, space, ideology, and discourse into observations of concrete situations. “Infrastructure is analytically useful,” Paul Dourish and Genevieve Bell tell us,

<sup>14</sup> Actor-network theory is well known for according agency to things. New directions in studies of the built environment (Amin 2014; Gordillo 2014) or natural resources (Barnes 2014) also redistribute efficacious presence to entities like water or ruins in ways that are relevant for discussions of infrastructure.

“both because it is embedded into social structures, and because it serves as a structuring mechanism in itself” (2007, 418). But what is infrastructure?

Infrastructure conjures up quite physical things: pipelines, roads, wiring, cables, military installations, computer equipment, buildings. To be infrastructure, things usually have to be organized into physical networks (think Internet servers or sewer systems) but often include immaterial elements (wireless signals). They require a lot of capital. The codification of the term *infrastructure* in the mid-twentieth century hinged on economics: specifically, *infrastructure* migrated from a military term used by NATO to a broader label for “the technical-political systems required for growth and modernity” in postwar debates about funding for international economic development efforts (Rankin 2009, 61).

Yet despite the nitty-gritty, hard-surfaced connotations of systems of metal and asphalt, the term *infrastructure* itself is actually a bit fuzzy: even in the trade, there actually are no fixed definitions of the term. As an article in the *Journal of Urban Technology* puts it, “To use the word *define* with respect to infrastructure misconstrues the essence of infrastructure” (Neuman 2006, 3). Engineering, planning, and economic fields emphasize different qualities, and even within those fields, definitions vary.<sup>15</sup> It can be described by systematic (intended) functions or as a certain class of systems (Hannerz 2014). The *Oxford Dictionary* defines *infrastructure* as “the basic physical and organizational structures and facilities (e.g., buildings, roads, power supplies) needed for the operation of a society or enterprise.”<sup>16</sup> This definition emphasizes physical operations, but the sample sentence offered to illustrate infrastructure points to a wider meaning—“the social and economic infrastructure of a country”—which suggests immaterial systems (social, economic) and functions (conversion, storage, distribution, support).<sup>17</sup> The US National Research Council offers a comprehen-

<sup>15</sup> In the technical literature, characteristics of infrastructure include that it is indivisible, immobile, long-lasting, networked, and nonrival (an economic term meaning that use does not make it scarcer). Physical infrastructures are defined in terms of high capital intensity, hardware dependency, and technology intensiveness. Technical writing about infrastructure also maps functional qualities: network morphology; inputs and outputs; intensity of use by time, place, and role; continuous or discrete movements; velocity and direction; and geographical scale. Another feature, elaborated in this essay, is infrastructure’s “public utility nature”; see, *inter alia*, Weijnen and Bosgra (1999, 93–94).

<sup>16</sup> *Oxford Dictionaries*, s.v. “infrastructure,” <https://www.oxforddictionaries.com/definition/english/infrastructure>.

<sup>17</sup> Overall, infrastructure is defined by its enabling functionality, that is, an infrastructure provides support for other activities. For some infrastructural systems (e.g., energy), the central function is “bringing about the conversion of physical matter into a form ready-for-use” (Weijnen and Bosgra 1999, 93). Other functions of infrastructure are transport, dis-

sive definition of infrastructure as “the operating procedures, management practices, and development policies that interact together with societal demand and the physical world” (Committee on Infrastructure Innovation 1987) in order to provide a range of services: a definition that foregrounds social codes (policies, procedures), practices, interaction, and provisioning. One interdisciplinary study concludes that the principles for defining infrastructure were basically an author’s “gut feeling” about what matters economically or a list of characteristics “*generally associated with infrastructure*” (Firth, Boersma, and Melody 1999, 28). As with intimacy, this very lack of fixed meaning can serve critical analytical purposes.

If not entirely open-ended, the working conceptions of infrastructure see a spectrum of entities at play, determined if at all by the particular network at a particular place and time. Thomas P. Hughes’s framing of “large technical systems” like electricity operates as an expansive working conception of infrastructure: “Among the components in technological systems are physical artifacts, such as the turbogenerators, transformers, and transmission lines in electric light and power systems. Technological systems also include organizations, such as manufacturing firms, utility companies, and investment banks, and they incorporate components usually labeled scientific, such as books, articles, and university teaching and research programs. Legislative artifacts, such as regulatory laws, can also be part of technological systems. Because they are socially constructed and adapted in order to function as systems, natural resources, such as coal mines, also qualify as system artifacts” (Hughes 1987, 51). When we see infrastructure as “life supports that channel water, energy, information, people, goods, and wastes to and from the objects supported,” as Michael Neuman does (2006, 3), we can see how they are part of the conditions for kinship and sex and civic life. That they assemble knowledge, regulations, and things enhances their appeal for directions in feminist and queer thought.

The rubric of infrastructure draws on unfolding studies of technology, science, and objects, often drawing on actor-network theory, understood as the study of ways that heterogeneous components form a network, which itself produces its object (e.g., truth, nature, humans). A new emphasis on animating objects and technologies in social analysis represents a larger shift from an androcentric horizon in which things or other life forms represent the background to, or objects of, human action to one

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tribution, and storage. Some authors, particularly those interested in media and communications, emphasize infrastructure’s role in facilitating flow and circulation (Edwards 2003; Larkin 2008).

that grants greater (albeit debated) agency to nonhumans. These approaches feel related to the renewed theoretical attention to ontology in new materialist theories (Kockelman 2013), such as new feminist materialism (Grosz 2001). While beyond the scope of this article, one of the marked outcomes of these directions is greater attention to animals as agents, particularly in animal-human intimacy in queer and feminist studies. Michelle Murphy exemplifies these directions in her definition of *infrastructures* as “spatial arrangements of relationships that draw humans, things, words and non-humans into patterned conjunctures” (2013, 104).

There is abundant work that animates objects, substances, and things in ways that are linked to infrastructure (Barnes 2014; Starosielsky 2015). Although it does not focus on the term *infrastructure*, one example is Ariel Ducey’s 2010 article “Technologies of Caring Labor: From Objects to Affect.” Ducey talks about technologies in a hospital both as literal objects (Does the shower work?) and as techniques of governance (How are workers expected to manage the broken shower?). Her analysis of objects and technologies as “the structures on which sociality, and the labor that it produces, hangs” (Ducey 2010, 22) could also provide a working articulation of the infrastructure of intimacy. Similarly, other interpretations of objects and technology can be extended to conceptualizing infrastructure in relation to intimacy. If objects are described as an “embedding environment for the self” (Knorr Cetina 1997, 24), while communications technology is described as “the objects *with* which and the conditions *within* which we enact some of the most profound conduct of our lives: dealing with family, friends, and ourselves” (Fischer 1992, 7), both of these depictions also aptly frame the infrastructure of intimacy.

The overlap between infrastructure and these related topics of objects, technology, and things raises the question, what is particular to infrastructure? One argument for studying the infrastructure of intimacy is its systemic, networked quality. This enables a discussion of systems that does not ascribe a priori or deductively applied structures to a mess of materials but rather identifies systemic patterns that emerge from the assemblages’ operations. The various entities that comprise an infrastructure, when they function, achieve its systematicity. Infrastructure offers a structuralism that is amenable to poststructuralist and empirical methods. But still the rubric of infrastructure is a construction that is itself intertwined with histories of the very networks we are considering: the term only became popular through international efforts to create infrastructures to achieve modernized national economies (Rankin 2009). Infrastructure has traction for contemporary critical studies of intimacy precisely because of this history—because of the way the term has been used in debates about public and pri-

vate provisioning. For studies that understand intimacy in relation to geopolitics and global capitalism, infrastructure's entwined history with transnational political economy is salient (Robbins 2007; Frischmann 2012). In this sense, I am using infrastructure in the way that authors like Berlant and Povinelli use intimacy: as an object in itself and as a rubric to describe the construction of that object.

### Water under the bridge

The smell of infrastructure is the smell of the public.

—Bruce Robbins (2007, 26)

Differentiations between public and private, in the political-economic sense of those terms as state and commerce, are bound up in definitions of infrastructure. The term was coined in relation to railways during the era of French high colonialism: *infrastructure* meant the understructure of railways (land, embankments, bridges) as opposed to their *superstructure* (rails, stations, and any type of overhead structures) (Rankin 2009). The term *infrastructure* was first used in English in 1927 to refer to such military constructions as tunnels or culverts, then applied to frame civilian infrastructure as national self-defense (Firth, Boersma, and Melody 1999, 22). In the postwar period, the word was seen as “NATO-jargon” used to describe investments in rebuilding Western Europe (Rankin 2009, 63). Science historian William J. Rankin's careful genealogy of the term shows how *infrastructure* became popularized through the United Nations' attention to development: “The category of infrastructure has its roots in a debate about cost, where the business logic of overhead accounting came to be applied to entire national economies” (Rankin 2009, 62).<sup>18</sup> Influenced by modernization theory's emphasis on social overhead capital as key to underdeveloped countries' takeoff, UN visions of infrastructure included provisioning education and other social projects. Only later did the term become more affixed to large-scale technological projects like

<sup>18</sup> Why analyze intimacy in relation to a term that only gained currency in the late 1950s in the specific context of Cold War geopolitical concerns with development (Rankin 2009)? When we apply the term *infrastructure* to most contexts—that is, any outside Western military orbits—before the mid-twentieth century, we are using it retroactively and arguably anachronistically. An older term would have been *public works*. Yet *infrastructure* has proved productive to describe the installation of modernity, including, *avant la lettre*, through colonialism (Larkin 2008), perhaps resonating with the contemporaneous military uses of the term.

dams (Rankin 2009). This history shows that the rubric of infrastructure was created through colonial (and imperial) development projects of modernity; as such, infrastructural investment was also a transnational, public project.

Infrastructure is so closely linked with public provisioning that the discussions of these domains have considerable overlap: much of what counts as infrastructure is associated with utilities or public goods and with a material manifestation of legitimate sovereignty. To understand the salience of infrastructure for analyses of intimacy under postsocialist or neoliberal conditions, it is worth articulating these economic dimensions in some detail. The Organisation for Economic Co-operation and Development (OECD) identifies infrastructure as public facilities: “the types of social facilities which are regarded as essential to the maintenance of a tolerable standard of living for residents and workers: educational and health care facilities, leisure facilities and open space and the infrastructure associated with the maintenance of public health and welfare, law and order and public administration” (OECD 1991, 19). “Public good” is an economic as well as a political concept. It results from the understanding (which clearly varies over time and by regime) that markets do not work well for achieving “tolerable standards of living” in all areas. “Market failures” occur where there is not enough likely profit to motivate capitalist investment in the service because the good is “nonexcludable” (you cannot prevent people from benefiting) and “nonrival” (people’s use does not diminish the good or make it scarcer): “You can’t control its distribution via contract and you can’t make it scarce enough to merit a price” (Mann 2013, 93). When capitalists lack the likelihood of profit because a service is nonrival and nonexcludable, then the state is the ideal provider, and ideal states provide those services. Even Adam Smith felt that the state should provide such public goods as roads. Thus, a common conception views infrastructure as a “natural monopoly” controlled by the state (Firth, Boersma, and Melody 1999, 22). The long economic boom associated with Fordism, state communism, and Cold War international aid—the glorious thirty years (Piketty 2014)—was characterized by a shared ideal that states should invest in large-scale infrastructure to provision public goods and to spur economic development. An axiom of modernization theory was that infrastructure led to development and should be funded through aid (Rankin 2009).

While the development of the rubric of infrastructure, and its prevailing definitions, lean public—arguably toward a kind of commons (Frischmann 2012)—increasingly, econometric logic and neoliberal policies are erod-

ing infrastructure's public aura. In the field of economics, infrastructure's main role is to facilitate economic activity (Firth, Boersma, and Melody 1999, 28). It considers infrastructure as capital, specifically "social overhead capital" (Frischmann 2012, 5) or "productive capital" (Piketty 2014, 48) that is tallied as a "non-financial asset" (Piketty 2014, 46). Those definitions have stakes for the conditions for everyday life, as they shape evaluations of national economies and policies for the provisioning of public services. Policy makers think about infrastructure in relation to economic growth, generally meaning support for select businesses rather than a commons or the public's well-being.<sup>19</sup> Infrastructure is calculated as the property of the nation and hence as a sign of its well-being, a reputation that affects its ability to raise funds for further public projects, whether by taxing corporations (rather than offering tax breaks to attract their presence) or by borrowing money at less than usurious rates.<sup>20</sup> Technicalities aside, when queer and feminist studies speak of privatization and neoliberalism, they often mean infrastructure. Studying the infrastructure that houses, lights, heats, sanitizes, or conveys people offers a way to understand the political economy of intimacy.

### **London Bridge is falling down**

Infrastructure is a key, if neglected, element in domains referenced in critical studies of intimacy: modernity, globalization, and neoliberalism.<sup>21</sup> As Saskia Sassen (2004) has shown, global flows of capital have been generated by infrastructures of law, capital, and labor configurations that oper-

<sup>19</sup> Writing against a conventional economic approach that evaluates infrastructure according to its value for the market, Brett M. Frischmann suggests that infrastructure be understood as "a large-scale physical resource made by humans for public consumption," that is, the "shared means to many ends" (2012, 3, 4). Naming infrastructure as a kind of commons with values beyond a market logic changes the understanding of costs and benefits that guides conventional economic and policy discussions.

<sup>20</sup> National investments in infrastructure offer an index of development: most rich countries invest about 1–1.5 percent of their gross domestic product (GDP) in infrastructure (Piketty 2014, 654), while development experts advise developing nations to increase investments in infrastructure apace with growth in their GDP (Levy 1996, 357). The value of a country's infrastructure depreciates each year, generally by 10 percent (Piketty 2014, 46), which, without further input, will lower the measure of the wealth of the nation.

<sup>21</sup> Infrastructure has also been used to illuminate intimate relations under colonialism and imperialism (Stoler 2001; Larkin 2008). While the history of empires is beyond the scope of this article, my argument depends on the trenchant approaches to thinking about the infrastructure of intimacy found in postcolonial analysis.

ate in particular grounded contexts.<sup>22</sup> Edwards calls infrastructure the “connective tissues and the circulatory systems of modernity: infrastructures simultaneously shape and are shaped by—in other words, co-construct—the condition of modernity” (2003, 185). The modern is unthinkable without its infrastructure: without dense housing, transportation arteries, electric power, and now, digital signals. But if it works, what feels new and modern—the technological sublime (Larkin 2008)—eventually becomes part of the background environment—the barely seen telephone pole.

The prefix *infra* means “below,” which flags the intended purpose of conventional infrastructural projects to end up hidden from the view of most users: pipes beneath ground, wires behind walls, or satellites orbiting out of sight. As a study of the Parisian underground metro says, “They are physically hidden because planners deliberately embed them in other structures, behind walls or underground, but they are socially hidden because they are made to run smoothly and fade into the background, to become routine or taken for granted” (Soppelsa 2009, 18). Considering the association of infrastructure with modernity through a postcolonial lens brings awareness of installation, operation, and failure: of the multiple resources, efforts, and exclusions that achieve that taken-for-granted background hum. Indeed, infrastructure is not always intended to be invisible. European colonial projects intended their infrastructure to be seen, to inspire awe in the colonized subjects (Larkin 2008).

This intention of invisibility, and its realizations in some places for some populations, allows us to think about infrastructure in relation to ideology, as metaphor or manifestation. Infrastructures are constructed and operated (behind the scenes) in order to achieve the status of taken-for-granted background to activities. In this way, infrastructure exhibits what science and technology fields mean by the term *construction*: not a fiction that pretends to reality but a fabrication from material and symbolic means that *is* real. A component of successfully operating infrastructure is thus ideological, by operating in ways that obscure the labor and politics involved in that functioning. Just as ideology can become more obvious during fraught times or in off-kilter (heterotopic) spaces, then so too is consciousness of infrastructure more apparent when not yet absorbed into the background: when it is being installed (e.g., Star 1999) or displayed as the “colonial sublime” (Larkin 2008, 36).

<sup>22</sup> Sassen’s work has rendered the seemingly intangible and speedy qualities of globalization into generative agendas for concrete research on communities and urban life in ways particularly relevant for work on race, ethnicity, and gender by showing how globalized flows of capital or information are “deeply embedded in place” and require “a whole infrastructure of activities, firms, and jobs” (Sassen 2004, 31).



Infrastructures do not always run smoothly: that is an achieved status and one with geopolitical specificity, associated with the developed world of Japan and the West. As Edwards notes, “This notion of infrastructure as an invisible, smooth-functioning background ‘works’ only in the developed world. In the Global South . . . , norms for infrastructure can be considerably different” (2003, 188). Indeed, infrastructure demarcates developed from undeveloped places. For modernization theory, infrastructure was the decolonizing world’s key to catching up: according to Rankin, “Infrastructure became simply a synonym for prerequisite, a way to label all those things lacking in the underdeveloped world—that is, everything separating the state of underdevelopment from that of modernity” (Rankin 2009, 69). Critical transnational scholarship has analyzed the binary logic in hegemonic demarcations of territory and time: in the categories of developed/underdeveloped, modern/traditional (or backward), post–Cold War and postsocialist contexts, Fordism and post-Fordism. Infrastructure is as much a marker of these divides as it is an object of neoliberal cutbacks to state provisioning.

Worldwide, we see the decay and failure of public infrastructure. Indeed, the decline of government or public expense on infrastructure is the hallmark of neoliberalism, which is also significantly a post–Cold War, post-Keynsian, and postsocialist context (Clark 2000; Graham and Marvin 2001; Sassen 2004). With structural adjustment (later neoliberalism) and the end of command economies, states now sponsor monumental infrastructure chiefly in the name of security and business rather than public provisioning. The experience of Latin America is general: “From around 1990, infrastructural investment would no longer be about marking the landscape with monuments to human intervention that might spur sluggish national economies; infrastructure instead would become a subtler affair, leading states to emphasize their role as scaffolders of human and natural capacities” (Hetherington and Campbell 2014, 191). Reduced budgets and probusiness sentiment lead governments to invest their resources in public-private partnerships (P3 for short).<sup>23</sup> One source for this money is workers’ retirement plans. The shift in first-world retirement programs to relying on stocks and bonds has created “pension fund capitalism”: enormous pools of capital that can be invested in long-term

<sup>23</sup> International bodies, including the United Nations, the International Monetary Fund, and the World Bank, encourage public-private partnerships as well. Privatizing infrastructure transfers public resources to private entities in several ways: by governments’ paying interest on the debts (bonds) that helped pay for infrastructure, by allowing the private partners to keep user fees, and by reducing corporate obligations to pay taxes on profits from those fees.

projects, like new infrastructural projects (Clark 2000).<sup>24</sup> Thus, changes to provisioning for the elderly—including the source of payment for the intimate labor of their care—are intertwined with increasing reliance on private funding for infrastructure.

Just as the installation of infrastructure has never been equitable, the decay of public infrastructure is not a homogeneous decay. The processes summarized as *neoliberalism* have also been described more specifically as the “unbundling” of infrastructure: “Standardised and bundled infrastructure is broken apart or segmented technically, organizationally and institutionally into competitive and non-competitive elements to support infrastructural consumerism” (Graham and Marvin 2001, 430). The result is the “splintered city”—or globally, an international archipelago of economically privileged zones—in which unbundled resources are decentralized in an uneven way that prioritizes select business sectors and their elite workers (Graham and Marvin 2001).<sup>25</sup> The “splintering” or “unbundling” of public infrastructural goods mostly recreates existing inequalities between wealthier and poorer countries and cities.<sup>26</sup> The distribution of plumbing, transportation, communications, and public space all affect sociality, producing the consequential material dimensions of inequality: where you can go, how you can reach people, where you can have sex, how you

<sup>24</sup> Pension funds in general have shifted from defined benefit to defined contribution, which means funding workers’ later years through speculative returns on investments in corporate finance (stocks) and government debt (bonds). In so doing, it exposes workers’ retirement security to the risks of the market while also creating an enormous pool of capital available for long-term investments such as new infrastructure.

<sup>25</sup> Underlying mainstream infrastructure policy is the belief that infrastructure generates economic development: “Continuing economic progress depends upon the development, growth, and preservation of a country’s infrastructure” (Levy 1996, 21). The OECD advises cities that the purpose of infrastructure is “to attract foot-loose tertiary activities and high-technology industries,” “to project an image appropriate to the times,” and “to offer a high quality of life and environment” to creative and management classes (OECD 1991, 15). Plans for infrastructure therefore privilege certain valued businesses and elite employees over the good of the general public or older industries (Sassen 2004).

<sup>26</sup> Private infrastructure targets high-paying customers. This “infrastructural consumerism” (Graham and Marvin 2001, 430) limits infrastructural choice to better-off people and neighborhoods. At the same time that public infrastructures are failing in rich countries, around the world P3 projects are installing optimal infrastructure in select sites, including wealthy zones within global cities, particularly their finance districts, export processing zones, information technology hubs, and elite tourist venues. These nodes link together into a transnational network that forms an “archipelago economy” (Graham and Marvin 2001, 305). The converse of this infrastructurally rich archipelago economy across the global North and South is the “third worlding” of the first world, where poorer neighborhoods are saddled with decaying, nonexistent, or unaffordable infrastructures (Sassen 2004).

can wash up. To invoke the examples of this essay, the widespread closing of public restrooms and public pay phones in the global North alters the landscape for intimate connections. Thus, while the rubric of infrastructure offers a material manifestation of class, race, and regional inequalities, it also explains how they are created. Infrastructural inequality is a way to specify neoliberalism in an analysis of the structuring contexts for intimate relations.

Failed infrastructure is the setting for many lives (Elyachar 2012). “While some infrastructural projects may have eventually become part of the landscape,” write Kregg Hetherington and Jeremy M. Campbell, “at least as often they remain as monuments of bad deals, uninterested lenders, or questionable governance in the years after they initially appear” (Hetherington and Campbell 2014, 191). But the ruins of infrastructure that has failed as a systemic network is also a resource of everyday life. Gastón R. Gordillo provides an evocative portrait of the social life of the ruins created by Argentina’s economic and political history. As severe cutbacks shuttered railway lines, it scattered the inhabitants of settlements around stations. Then people turned the abandoned train stations into dwellings, “doing what humans have done with rubble for millennia: turning it into something useful,” and at times into a new commons (Gordillo 2014, 176).

### **Conclusion: Hit the road, Jack**

All infrastructure is knowledge.  
—Margot P. C. Weijnen (1999, 3)

Studies of infrastructure, along with studies of architecture, objects, space, and cities, have created ways to think about “the queerness of matter and things” (Graham 2010, 184)—how they are not what humans assume them to be. Infrastructure provides a way to identify conditions, channels, and constraints as “real” without reproducing problematic modes of describing the real (e.g., deterministic, reductive, teleological, or Eurocentric). For those seeking to understand the intimate operations of power in material, political-economic, and systemic terms, the study of infrastructure offers both an object and a rubric. Infrastructure is a system or assemblage that includes physical and immaterial elements, usually intended to operate in the background, and is intended to facilitate living and activity: in some cases, for the well-being of a population (public good, social demand), in others, the profitable activity of businesses (Committee

on Infrastructure Innovation 1987; Kockelman 2013). What this framing makes clear is that the interest in infrastructure applies not only to technology or to literal immaterialized objects; it also includes a sense of systems, management, and energy, as well as planning and design—hence, discourse, symbols, and, arguably even affect.<sup>27</sup> In many situations, these systems provide the structures on which sociality hangs (Ducey 2010, 22). They constrain and channel but do not determine, allowing unintended consequences (bathroom sex) alongside normative visions (gendered bathrooms). These approaches make the structuralism of infrastructure safe for poststructuralists.

Infrastructure is a systematic assemblage of objects, codes, and procedures that, whether it fails or succeeds, is often an embedding environment for intimate life. Critical studies of infrastructure take material substances seriously not to reduce social life down to a more real substrate but rather to perceive it as a way to open up received categories. They frame infrastructure as a constructed (real) techno-material-symbolic assemblage that, at least in intention, underpins, enables, and conditions the context for more visible enactments, some intended by explicit norms and some more or less transgressive appropriations.

Infrastructure offers a way to describe a context of governed, material systems—artificial light, parking, walled spaces, security systems, sanitation—that reveals capital flows and property regimes. As one writer says, “Who pays (and who does not), who benefits (and who does not), and where roads go (and where they do not) all create changing surfaces of inequality” (Warf 2006, 258). Curiosity about infrastructure leads to information about the concrete allocation of resources in relation to collectivities or commerce: Who shoulders the obligations entailed by provisioning infrastructure? Who has ownership and control? Who is excluded? Feminist and queer frameworks bring attention to the *who* of these questions, particularly in relation to heteronormative, gendered, or racist criteria. Infrastructure relocates questions from the discursive operations of biopolitical logic to the institutional structures that provision needs themselves, as well as to the relation of these systems to public collectivities or private capitalist markets. After all, neoliberalism centers on the erosion of public support for, and privatization of, collective forms of provisioning.

<sup>27</sup> Writing in the ontological vein of new materialism, Paul Kockelman also places infrastructure in a symbolic register, as a range of “semiotic processes, or modes of mediation,” like the meanings embedded in system design (Kockelman 2013). I have not emphasized a semiotic conception of infrastructure because discursive or symbolic analyses are already abundant in writing about intimacy, whereas analyses of material infrastructural assemblages are not.

But just as the critical use of intimacy counters the commonsense understanding of public and private, the emerging use of infrastructure eschews a technological determinism or materialist naturalism that talk of railway gauges might suggest. All reasons for intimacy's relationship to infrastructure: it's complicated.

*Women's Studies and Cultural Anthropology*  
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