

Infrastructure and the Form of Politics

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ABSTRACT

Background: This article surveys recent engagement with infrastructure across several fields, with particular attention to analyses of the relationship between infrastructure, extractive capitalism, and settler colonialism.

Analysis: The article treats infrastructure as a form of non-discursive politics and examines the critical status of the concept in light of the historical and contemporary implications of infrastructure in colonialism, settler colonialism, and racial capitalism.

Conclusions and implications: The article concludes that treatments of infrastructure in recent critical feminist, queer, and Indigenous thought open new possibilities for re-thinking politics, communication, and media.

Keywords: socio-technical; critical theory; technology theory; post-colonialism

RÉSUMÉ

Contexte : Cet article examine l'engagement récent en matières d'infrastructures dans plusieurs domaines, et accorde une attention particulière aux analyses des relations entre les infrastructures, le capitalisme extractif et le colonialisme-habitant.

Analyse : L'article traite l'infrastructure comme une forme de politique non-discursive et examine le statut critique du concept en relation avec des implications historique et contemporaines de l'infrastructure dans le colonialisme, le colonialisme-habitant et le capitalisme racial.

Conclusions et implications : L'article conclut que le traitement de l'infrastructure dans la pensée critique, féministe, queer et indigène récente ouvre de nouvelles possibilités pour repenser la politique, la communication et les médias.

Mots clés : socio-technique; théorie critique; théorie de la technologie; postcolonialisme

Introduction

In February 2020, the attention of the Canadian polity was transfixed—and a significant portion of the Canadian economy suspended—by disruptive occupations and demonstrations at railway lines, roads, intersections, buildings, bridges, and

ports (Johnson, 2020). Infrastructures of personal and commercial mobility and communication became scenes of delay, postponement, friction, and disability. For many—migrants in transit, refugee claimants, folks disabled by the “normal” configuration of built and social environments—such experiences are typical, but for other Canadians, these conditions were exceptional. Supply chains were temporarily broken, their seams exposed, flows interrupted, and logistics confounded (Perreault, Atkins, & Andrew-Gee, 2020). In this case, infrastructure was not only the medium of political conflict but also its motivation, object, and its form. The demonstrations were in solidarity with hereditary chiefs and land defenders of the Wet’suwet’en First Nation in northern British Columbia, whose encampments and checkpoints blocking the development of the Coastal GasLink pipeline on their unceded territories had been raided by police (McIntosh, 2020). The episode was the most recent in a nearly 200-year history in Canada in which infrastructures of extraction, industry, transportation, and communication have mediated the dispossession of Indigenous lands, the sundering of relations redefined as “resources,” and erasure of Indigenous legal orders and jurisdiction, as well as resistance to these injustices (Cowen, 2018; Pasternak, 2017; Spice, 2018). In this respect, Canada’s is but one chapter in a long and ongoing global story (Gómez-Barris, 2017).

This article approaches infrastructure not just as a site or object of political identification and contestation but as a form of politics. “Form,” here, means the shape of politics and the arrangement of its parts, and also its determining principle. Politics takes many forms. Parliamentary democracy, for example, shapes politics as institutionalized representation, persuasion, deliberation, and decision-making according to the determining principles of reasoned speech and majority rule. Infrastructure is another form that politics takes, a form with distinctive shapes and principles (Easterling, 2014; Edwards, 2003; Graham & Thrift, 2007; Larkin, 2013; Star 1999; Wilson, 2016). The character (and potential) of infrastructure as a form of politics has been further exposed in recent Indigenous struggles and scholarship in Canada, and also by recent work in critical, post-colonial, feminist, and queer theory. As a white, cis-gendered male settler, my aim here is to listen carefully to this work and to these voices, and to follow their lead in rethinking the relationship between politics and infrastructure in the context of communication studies.

As Liam Young (2017) observes, “Although infrastructure feels fresh, it is anything but” (p. 231). Scholars in communication and media studies have always been infrastructuralists (Peters, 2015). Harold Innis (1962) painstakingly documented the media by which the extractive economy of settler colonialism was imposed on the Indigenous inhabitants, animals, and elements of what is now known as Canada. Innis’ accounts were conspicuously bloodless, but they confirmed that, in this context, communication began with transportation; transportation meant infrastructure; and infrastructure was implicated in the organization

of temporal, spatial, and environmental relations. Generations of Innisians have since extended and enhanced the infrastructural orientation he inaugurated in Canadian communication studies (Acland & Buxton, 1999; Berland, 2009; Carey, 1989; Ruiz, 2021; Young, 2017). Subsequent and parallel attention to the materiality of media (Acland, 2006; Cubitt, 2016; Devine, 2019; Gillespie, Boczkowski, & Foot, 2014; Gitelman, 2006; Gumbrecht & Pfeiffer, 1994; Kittler, 1999; Packer & Crofts Wiley, 2012; Parikka, 2012, 2015; Stamm, 2018), networks (Barney, 2004; Castells, 1996; Martin, 1991; Mattelart, 2000; Medina, 2011; Parks, 2005; Peters, 2016; Starosielski, 2015), circulation (Boutros & Straw, 2010; Gaonkar & Povinelli, 2003; Straw, 2010), surveillance (Andrejevic, 2007; Brown, 2015; Dubrofsky & Magnet, 2015; Gates, 2011; Lyon, 2001; Magnet, 2011; Zuboff, 2019), and software, platforms, and algorithms (Benjamin, 2019; Crawford, 2021; Gillespie, 2018; McKelvey, 2018; Noble, 2018; Rossiter, 2016; Srnicek, 2016; Sterne, 2012) confirms the gravitational force that infrastructure has exerted within media and communication studies, and it continues to animate some of the most innovative work in the field (Gabrys, 2019, 2016; Mukherjee, 2020; Parks & Starosielski, 2015; Starosielski & Walker, 2016).

The aim of this article is not to reprise this extensive literature within communication studies but to consider insights into the politics of infrastructure that are emerging in other fields. In particular, this article explores what these other conversations might offer to a theory of politics in which infrastructure is not merely an object of political contestation or a medium for the transmission of political texts, speech, and images (ways of thinking about politics and infrastructure that are very familiar to media and communication studies), but is, instead, the very form of politics itself. It would be misleading to say that such a perspective has been wholly absent in the media studies literature alluded to above, but it is emerging with distinctive force in the recent infrastructural turn in other fields; these approaches might inform a renewed approach to phenomena that have otherwise been centre stage in media studies for a very long time. Recent treatments of the role of infrastructure in the history of settler colonialism in Canada and contemporary Indigenous resistance to extractive and invasive infrastructure development are reviewed, raising the question of the status of infrastructure itself as a critical category. This question is then explored in relation to recent treatments of infrastructure across a diverse range of texts in contemporary critical theory. The article concludes with a reflection on the stakes of returning infrastructure to the centre of our attention as students of politics, communication, and media.

Do infrastructures have politics?

The question of infrastructure appeared in political theory forty years ago in a foundational essay by Langdon Winner (1980) called “Do Artifacts Have Politics?” By “artifacts,” Winner (1980) meant to encompass technical objects and systems of human design and manufacture, broadly gathered under the sign “technology,”

with an emphasis on large-scale energy, industrial, and transportation infrastructures. The essay begins with the observation that “in controversies about technology and society, there is no idea more provocative than the notion that technical things have political qualities” (p. 121), by which he meant that “the machines, structures, and systems of modern material culture ... embody specific forms of power and authority” (p. 121). Winner (1980) thought this claim to be provocative in the context of a culture where regard for technology as essentially progressive had become hegemonic (i.e., where automobiles, rocket ships, jet airliners, and computers were not just tools but vectors of freedom and democracy). He could not have predicted the backlash that would come from scholars of science and technology, whose field of study otherwise seemed predicated on this relatively straightforward claim. At issue were the epistemological and empirical stakes of positing a strong connection between the intentions of designers and the outcomes of their designs (Elam, 1994; Joerges, 1999; Woolgar, 1991; Woolgar & Cooper, 1999; see also Winner, 1993, 1994). Subsequent work exposing the role of infrastructure in the history of colonialism appears to have settled the matter. As Akhil Gupta (2018) has written, “colonial infrastructure ... was specifically intended to bring about a particular kind of future that was ruinous for the colonized nation-state” (p. 66). The history of ports, railways, roads, canals, pipelines, dams, prisons, and other communication infrastructures in imperial and colonial settings is the history of this political intention and its execution in relatively durable material forms (Anand, Gupta, & Appel, 2018; Arboleda, 2020; Carse, 2014; Enns & Bersaglio, 2020; Gilmore, 2007; Gordillo, 2019; Harvey & Knox, 2015; Khalili, 2020; Larkin, 2008; Lowe, 2015; Mezzadra & Neilson, 2019; Mitchell, 2002; Scheller, 2014; Zien, 2017). Colonialism and white supremacy are political forms that happen as infrastructure. Given the specific history and residues to which he refers, Gupta’s (2018) conclusion that “Infrastructures are important because the future they bring about always favors one set of political actors over others. There is no such thing as politically neutral infrastructure” (p. 66) feels like a relatively modest claim.

In light of the particular history and present of settler colonialism as an infrastructural project, it is hard to imagine that Winner’s basic propositions could ever have been controversial (Byrd 2011; Day, 2016; Karuka 2019; Rifkin 2014; Wolfe 2006). The first, that “the design or arrangement of a device or system could provide a convenient means of establishing patterns of power and authority in a giving setting” (Winner, 1980, p. 134), seems to be precisely what is at issue in the longstanding struggle of the Wet’suwet’en people over extractive infrastructures being installed on their territories (Unist’ot’en Camp, 2020). It is not only a question of what these infrastructures will do in a strictly functional sense (i.e., extract and transport natural gas) but also how they will “settle the issue” (paraphrasing Winner, 1980, p. 123) of who has authority in and over that territory and what can be done with and to it (Pasternak, 2017). “Pipeline infrastructures,” Tlingit anthro-

pologist Anne Spice (2018) writes, “also carry the work of jurisdiction and the assertion of political claims to territory and resources” (p. 46). This also illustrates Winner’s (1980) second proposition that certain infrastructures “appear to require, or to be strongly compatible with, particular kinds of political relationships ... particular *institutionalized patterns* of power and authority” (pp. 123–134, emphasis added). In Canada, infrastructures of extraction, transportation, finance, and communication have historically been means not only of their direct purposes but also of materializing the sovereignty and jurisdiction of the Canadian state over territories and their human and non-human inhabitants (Cowen, 2018). These infrastructures have been “strongly compatible” (Winner, 1980, p.123) with specific patterns of power and authority: political relationships institutionalized in the form of the Canadian extractive state economy and settler state, including the political, legal, and policing mechanisms required to accomplish and legitimize infrastructural projects themselves (Perry, 2016).

In most cases, these forms and the relationships they institutionalize differ significantly from the Indigenous legal and social orders they have sought to supplant (Borrows, 2019). When TC Energy and the governments of British Columbia and Canada endeavour to proceed with infrastructures such as the Coastal GasLink pipeline despite the opposition of Indigenous leaders asserting jurisdiction over their territories and cite the “rule of law” as justification, for example, they are installing not only a pipeline but also an entire legal and social order, with its attendant political forms. As Sleydo’, spokesperson for Gidimt’en checkpoint that blocked access to the Coastal GasLink site on Wet’suwet’en territory, put it, “We have never ceded or surrendered our lands. This is an issue of rights and title with our sovereign nation, and the RCMP are acting as mercenaries for industry” (quoted in Smith, 2019, para. 4). In this sense, pipelines are “inherently political” (Winner, 1980, p. 128): an economy and society built on extractive infrastructures installed on unceded territories “appears to require” the political form of the settler state and its legal and coercive apparatuses, a requirement to which the Wet’suwet’en hereditary chiefs and land defenders, among others, refuse to concede (Lightfoot, 2018; Simpson, 2017).

From this perspective, oil and gas pipelines are anything but neutral. They are infrastructures of “settler colonial invasion ... that are meant to destroy Indigenous life to make way for capitalist expansion ... a system that is fundamentally at odds with the cycles and systems that make Indigenous survival possible” (Spice, 2018, pp. 41–42). Such infrastructures are not merely technologies of extraction and transportation but “a settler colonial technology of governance and expropriation in lands now claimed by Canada” (Spice, 2018, p. 41). Governance here includes the legal designation of extractive and ancillary infrastructures as “critical,” such that Indigenous claims to jurisdiction, land and water defense, and political resistance are framed as national security threats, authoriz-

ing the invasive securitization of Indigenous territories and police violence against Indigenous bodies (Pasternak & Dafnos, 2018). In their account of the politics of settler colonial infrastructure, Anishinaabe writer and economist Winona LaDuke and geographer Deborah Cowen (2020) invoke Anishinaabe legend to characterize these violent and destructive infrastructures as *Wiindigo*: “The transformation of ecologies of the many into systems of circulation and accumulation to serve the few is the project of settler colonial infrastructure. Infrastructure is the *how* of settler colonialism, and the settler colony is where the *Wiindigo* runs free” (p. 245). In particular, “energy infrastructures constitute the contemporary spine of the settler colonial nation” (p. 249), a category that extends well beyond pipelines to include the vast network of infrastructural systems required to move energy resources through the circuit of financing, extraction, transportation, refining, manufacture, and consumption. These infrastructures “carve up Turtle island, or North America, into preserves of settler jurisdiction, while entrenching and hardening the very means of settler economy and sociality into tangible material structures” (LaDuke & Cowen, 2020, p. 244).

This account of the politics of settler colonial infrastructure raises many issues. Among them is the question of participation in infrastructure projects by Indigenous people, companies, and communities. For example, around the same time the Wet’suwet’en blockades went up, the Government of Québec and the Cree Nation Government announced the Grande Alliance, a \$4.7 billion deal to build infrastructure, including a deep sea port, hydroelectric lines, a railway, and extensive highway upgrades, to facilitate resource development in Eeyou Istchee, the Cree territory in northern Québec, including the extraction of lithium and vanadium, and possibly additional hydroelectric facilities, all presented as contributing to global renewable energy transition. Cree Grand Chief Abel Bosum described the deal as a “clear break from the past colonial and paternalistic government policies,” adding, “We are here today not to make a sacrifice or surrender. Today is not part of some concession or a difficult compromise. We are not forced to be here as part of a settlement” (Bell & Longchap, 2020 para. 4). For the Cree leadership, participation in these infrastructure projects materializes their right to economic and political self-determination on their territories, as affirmed in the James Bay Agreement of the 1970s, won after years of struggle against proposed resource development projects in which they were to play no role and derive no benefit (Carlson, 2009). In the case of the Coastal GasLink Pipeline project, TC Energy has signed Impact and Benefit Agreements (IBAs) with twenty First Nations, including the elected band councils of the Wet’suwet’en Nation. This suggests that at least some people in these communities favour the development, even as many others, including the Wet’suwet’en Nation hereditary chiefs, stand strongly opposed. Some have argued that this division is an artefact of the band council system, which was imposed by the federal Indian Act as a means of man-

aging Indigenous communities in the service of the settler colonial state, and that IBAs serve to contain Indigenous jurisdiction rather than affirm it. They are, in fact, part of the infrastructure of dispossessive extractivism, not a constraint on it (McCarty, 2019; Pasternak, 2020). Describing this dynamic in similar projects elsewhere, LaDuke and Cowen (2020) write, “In a strategy we see repeated over and over again, energy and transportation infrastructures are not simply imposed upon First Nations. Rather, in a context of profoundly constrained options forged by dispossession, Indigenous people are ‘invited’ to become project proponents and owners of Wiindigo infrastructure” (p. 253).

It is not for descendants of settlers to judge the respective strategies of the Wet’suwet’en hereditary chiefs, activists, and band councils, or the James Bay Cree. For the purposes of this article, the point is that the political matters at stake here—the imposed reproduction of settler colonial political economies, resistance to this imposition, and adaptation to its perceived benefits—all take the material form of infrastructure. It is perhaps for this reason that Spice (2018) suggests that “infrastructure” itself might be a “category that wield[s] and carr[ies] the authority (and violence) of the settler state” (p. 42). Whether as survivors of dispossession, resisters to unwanted projects, or parties to agreements that enable such projects to proceed, Indigenous people in Canada are bound to a politics of infrastructure that “obscure[s] the Indigenous relations these infrastructures attempt to replace” (p. 42). Spice’s radical claim is that infrastructure performs the material and categorical erasure of “Indigenous assemblages that sustain life” (p. 42), including grounded relations between Indigenous communities and the more-than-human constituents with which they share lands and waters. Referring to anthropologist Brian Larkin’s (2013) canonical rendering of infrastructure as the “undergirding of modern societies” (p. 328), Spice (2018) asks:

If those modern societies have settled, colonized, and attempted to eliminate existing Indigenous nations and political orders, *does the word infrastructure itself denote an apparatus of domination?* Here, the very act of defining infrastructures as tools of the state takes for granted the state’s ontological claims. “What one leaves out” of the definition of infrastructure is a world of relations, flows, and circulations that the settler state has attempted to destroy and supplant. (pp. 48–49, emphasis added)

This is a powerful claim, one that presents a serious challenge to any deployment of infrastructure as a critical category and to political programs that centre infrastructure as a potential site, means, or mode of practicing more just, inclusive, and environmentally responsible economic and social relations. In what follows, this article draws on a diverse range of contemporary perspectives that have theorized this potential in ways that suggest the possibility of recovering infrastructure

as a political category. The aim is to consider whether infrastructure, as a form of politics, can be detached from its ontological association with capitalist, extractive, colonial, and settler colonial modernity, such that it might open possibilities for what Spice (2018) (in conversation with Unist'ot'en spokesperson Freda Huson) describes as “alternative ontological and epistemological modes of relating to assemblages that move matter and sustain life” (p. 45).

Infrastructure (and politics) otherwise

To engage the politics of infrastructure is not just to treat it as an object, instrument, or outcome of political intentions, programs, and relationships, it is to consider how, as Hannah Appel, Nikhil Anand, and Akhil Gupta (2018) put it, infrastructure “provides a frame to defamiliarize and rethink the political” (p. 4). As they go on to say, “attention to infrastructure unsettles long-accepted understandings of how rule is accomplished” (p. 22). Rule is just one way of doing politics, but the broader point sticks: thinking with and through infrastructure unsettles our established understandings of what politics is, what it is for, and how to do it.

In the text *To Our Friends*, the Invisible Committee (2015) makes the following observation:

What is it that appears on euro banknotes? Not human figures, not emblems of a personal sovereignty, but bridges, aqueducts and arches. ... As to the truth about the present nature of power, every European has a printed exemplar of it in their pocket. It can be stated in this way: *power now resides in the infrastructures of this world.* ... Anyone who means to undertake anything whatsoever against the existing world must start from there: the real power structure is the material, technological, physical organization of the world. *Government is no longer in the government* ... power consists in infrastructures, in the means to make them function, to control them and build them. (pp. 83–85, emphasis in original)

This is a straightforward rendering of the claim that infrastructures are political arrangements, not just technical ones, with a corollary claim about the displacement of political power from politicians, legislatures, and parliaments and what they do, to those who make and control infrastructures and what they do. This has implications not only for the location of politics but also for its form. As they observe, “Absorbed in our language-bound conception of the public thing, of politics, we have continued debating while the real decisions were being made right before our eyes. Contemporary laws are written with steel structures and not with words” (Invisible Committee, 2015, pp. 84–85). What is to be done, they ask, with “an order that isn’t articulated in language, that is constructed step-by-step and wordlessly. An order that is embodied in the very objects of everyday life? An order whose constitution is its material constitution” (Invisible Committee, 2015, p. 86)? The answer is direct:

In the age when power manifested itself through edicts, laws and regulations, it was vulnerable to *critical* attack. But there's no *criticizing* a wall. ... A government that *arranges* life through its instruments and its layouts, whose *statements* take the form of a street lined with traffic cones and surveilled by overhead cameras, may only invite a destruction that is *wordless* itself." (Invisible Committee, 2015, p. 86, emphasis added)

There is typically a great distance between what state and industrial actors say about infrastructure (e.g., that it generates prosperity) and what they use it to represent (e.g., national identity, modernity, futurity) and what infrastructure actually does. This is the difference between what Larkin (2013) calls the "poetics of infrastructure" (p. 329) and its complex materiality. Politics attaches to infrastructure in both its poetic and its material dimensions, but it is particularly interesting to consider the potential of a politics of infrastructure understood as a politics without words. The entire Western tradition—from Aristotle to Kant to Arendt to Habermas—is predicated on the assumption that politics is an activity defined by speech. The implications of this are many. It has meant that the right to participate in political citizenship has always turned on the enforcement of prejudicial (gendered and racialized) distinctions between who is capable of speaking and who is not. It privileges certain modes of expression—speaking, arguing, persuading, representing—as ways of being political at the expense of others. This provokes many questions, including: Are modes of politics predicated on speech the only or most effective ones? What people and forms of practice does the privileging of speech exclude or depoliticize? What might be gained from an infrastructural disposition that reorients political subjectivity, agency, and practice away from representation and critique, speaking and persuading, toward unmaking and making, unbuilding and building? Away from immaterial modes of information and communication and toward material modes of informing and communicating—a politics that is not primarily dialogical but rather logistical (Cowen 2014)? A politics that has "little use for criticizing" (Invisible Committee, 2017, p. 79)?¹

To those who adhere to the idea that politics can only be expressed in words, the prospect of an infrastructural politics without words might appear specifically *alogical* and, thereby, depoliticized. After all, a great deal of the politics we normally associate with infrastructure is expressed in words—speeches, business cases, promotional materials, technical reports, expert testimony, literary texts—that speak for and about infrastructure before and after it speaks for itself (see, for example, Barry, 2013; Desbiens, 2013). Words and speech continue to harm, erase, and exclude, and critique remains an indispensable means of exposing this. And yet, strong traditions in feminist thought, subaltern and anti-colonial studies, affect theory, critical disability studies, and the history of everyday resistance have exposed rich varieties of political subjectivity and agency among those who have been silent or silenced, those who make no arguments, those who do not speak

because it is too dangerous, those who communicate otherwise and who communicate through means other than words, and those who appear not to communicate at all (Brown, 2005; Ferguson, 2003; Panagia, 2009; Pinchevski, 2011; Scott, 1985; Spivak, 1988). The subaltern cannot speak, but silenced, dispossessed, and disabled subjects act constantly in ways that take infrastructural forms (Brennan, 2017; Hamraie, 2017; Rezaei & Dowlatabadi, 2016; Simone, 2004). How might these ways of being political beyond speech inform an account of infrastructure as a material form of politics?

In her account of the role of infrastructure in post-apartheid South Africa, anthropologist Antina von Schnitzler (2018) emphasizes the particular significance of infrastructural politics in the context of decolonization, a condition that demands “a more expansive theory and vision of what it means to act politically in the post-colony and beyond” (p. 135). When an idealized public sphere of intersubjective dialogue between people who recognize each other as equals either does not pertain or is attenuated, what is required is “an account of the political that is attuned to the material, affective, counterpublic, or indeed nonpublic forms of political engagement” (p. 135). Infrastructure is one such form, “where space opens for a politics that has been foreclosed in the formal sphere of politics” (p. 135). For von Schnitzler (2018), this calls for attention to “the ways in which the political may also take shape *at the registers and forms of the infrastructural ... a technopolitics in which infrastructure itself becomes a modality of political action ... one that in the present is for the most part no longer intelligible as ‘speech’*” (pp. 135–137, emphasis in original). Her account of this mode of politics-that-is-not-speech centres on the contested imposition of and resistance to infrastructures of domestic water-metering in post-apartheid South Africa, but the implications of this formulation extend far beyond that context.

Once the hold of speech on our collective conception of being political is loosened, the way is cleared for thinking about infrastructure as a form of politics consistent with a range of orientations and practices that have typically not been considered political. These include subtractive orientations, such as refusal, withdrawal and sabotage, practices that are often coded as non-, a-, or anti-political but are generally mediated by infrastructure (Barney, 2020; Halberstam, 2013; Simpson, 2017; Truscello, 2020; Williams, 2016). They also include positive orientations and practices that are either mediated by infrastructure or take infrastructural forms, such as repair, maintenance, provisioning, care, kin-making, and planning (Benjamin, 2018; Harney & Moten, 2013; Graham & Thrift, 2007; TallBear, 2018). These practices are typically gendered and racialized, a function of the same prejudice that denies particular subjects access to politics restricted to a specific form of speech. They also have not typically been recognized as political practices and orientations but in infrastructural form they become undeniably so, especially under conditions of inoperativity, or what Michael Truscello (2020) aptly describes

as infrastructural brutalism, “the transversal ecological, political, and psychological brutality” (p. 2) of a world constructed by large-scale capitalist infrastructure that “isolates, toxifies, dispossesses, and immobilizes, contrary to the more common infrastructural tropes of connectivity and mobility” (p. 2). As Giorgio Agamben (2015) observes, under such conditions, forms of life previously confined to the *oikos*, the household, rush the *polis* and become political. What were once “merely” domestic arts—arts of the household; arts belonging to (supposedly) speechless women and slaves; arts of repair, maintenance, provisioning, care, kinship, and planning; arts of infrastructure—become political arts, arts of destituent power (Agamben, 2014). To associate them with destitution is not to diminish or despair of them but to elevate them as definitive examples of how to be political when an existing political-economic order and its infrastructures are inoperative (Puig de la Bellacasa, 2017). The arts of making and practicing infrastructure in this way might arise in response to infrastructural brutalism, absence, or failure, but their political quality exceeds mere coping. In their viability, these practices actively destitute the existing material order and the violent, poisonous, and wasteful relations installed and mediated by its infrastructures. This is what makes them political arts, not just technical ones.

Resources abound for thinking about infrastructure and politics otherwise. In *Notes Toward a Performative Theory of Assembly*, Judith Butler (2015) directs our attention to the politics invoked by conditions in which prevailing infrastructures have been rendered inoperative, such that life becomes unlivable. She writes, “the demand for infrastructure is a demand for a certain kind of inhabitable ground, and its meaning and force derive precisely from that lack. This is why the demand is not for all kinds of infrastructure, since some serve the decimation of livable life” (p. 127). One thinks immediately here of Indigenous peoples in Canada, for whom the lack of certain kinds of infrastructure and the imposition of other kinds combines to deprive them of an inhabitable ground, to decimate their chances for livable lives (Senate of Canada, 2015). One also thinks of how the infrastructural politics of the Wet’suwet’en hereditary chiefs—refusing the erasure of their jurisdiction by unauthorized infrastructure projects; temporarily suspending the Canadian economy by throttling the flows mediated by key systemic infrastructures; repairing, building, and maintaining Indigenous practices and infrastructures of provisioning, stewardship, kinship, care, and governance—advance the destitution of a political economic order that has become inoperative. Their destituent power is the power of infrastructure, not dialogue, and it materializes a possible exit from the untenable relations that extractive, settler colonial capitalism otherwise imposes on them. The chiefs do not need anyone to speak for them, but their actions are good examples of what Butler (2015) might mean when she observes that “if politics is oriented towards the making and preserving of the conditions that allow for livability,” then politics is “never fully separable from questions of infrastructure” (p. 127).

For Butler (2015), thinking of infrastructure as intrinsic to politics arises from the embodied—and therefore vulnerable, exposed, dependent, and relational—character of being human, which includes vulnerability and exposure to, dependency on, and relationship with a multitude of non-human things. As she writes, “we cannot understand bodily vulnerability outside this conception of its constitutive relations to other humans, living processes, and inorganic conditions and vehicles for living” (p. 130). The vulnerability that structures our relations to these others is exposed in moments of infrastructural lack or failure, but Butler’s (2016) key insight is that the condition of being vulnerable precedes these moments and persists after them. As she puts it in a later essay, “It was not as if we were, as creatures, not vulnerable before when infrastructure was working, and then when infrastructure fails, our vulnerability comes to the fore” (p. 13). Vulnerability attaches to the relational, performative, dependent quality of being human in the world. Infrastructure is not the cause of this vulnerability but one of the names for it. According to Butler (2016), “relationality includes dependency on infrastructural conditions,” and it calls for “theorizing the human body as a certain kind of dependency on infrastructure, understood complexly as environment, social relations, and networks of support and sustenance by which the human itself proves not to be divided from the animal or from the technical world” (p. 21).

Butler is neither first nor alone in thinking about deep relationality as intrinsic to being human, nor in extending this relationality to a broad range of non-human others, including the animal, organic, inorganic, and technological others whose agency we are vulnerable to and who are vulnerable to ours. The list of thinkers following this line of thought and exploring its implications is very long (Barad, 2007; Braidotti, 2013; Haraway, 2016; Peters, 2015; Tsing, 2015). It includes, significantly, a number of Indigenous thinkers, who teach us about relational ontology as it exists across a broad and diverse range of Indigenous philosophies, cultures, and practices, both historically and contemporarily (TallBear, 2018; Todd, 2016; Watts, 2013; Whyte, 2016; see also de la Cadena, 2015; Kohn, 2013; Viveiros de Castro, 2015). It includes many thinkers who see this orientation and the ethics arising from it as crucial to the possibility of ecologically viable futures (Alaimo, 2016; Puig de la Bellacasa, 2017). Some have explored the question of whether and how these relations might be understood specifically as *political* relationships, a proposition complicated by customary associations of political action with reasoned speech and deliberation, and by the fact that the non-human others with whom we might otherwise have a political relationship typically do not speak (or, at least, do not speak *typically*) (Baker, 2020; Bennett, 2010; Connolly, 2017; Latour, 2004; Povinelli, 2016; Stengers, 2010).

This is where Butler’s (2016) intervention becomes particularly generative, in that it suggests the possibility of infrastructure as the form such a politics might take. As she describes, it is commonplace to cast vulnerability and political agency

as opposites and “to assume that vulnerability is disjoined from resistance, mobilization and other forms of deliberate and agentic politics” (p. 22). This opposition relies on an account of politics as a conversation between autonomous, self-determining, sovereign subjects that feminist thought has long since exposed to be a masculinist fantasy. Politics takes place under the sign of heteronomy, a response to the inescapable experience of being acted upon by others. It is not the expression or assertion of our autonomy—it is the mediation of our ongoing and shared vulnerability. As Butler (2016) avers, if we reject the binary between vulnerability and political agency, and understand them to be complementary rather than opposed or mutually negating, we can think about politics in new modes. These are modes in which “vulnerability is still there, but only now assuming a different form” (p. 23). Butler does not make this argument but infrastructure can itself be understood as a mode of politics under these conditions, a material response to the experience of shared vulnerability between humans and non-humans alike. Infrastructure is not only a name for this shared vulnerability but the very form that politics between and among these beings takes—with politics understood as the mediation of their mutual dependency.

In her essay “The Commons: Infrastructures for Troubling Times,” Lauren Berlant (2016) suggests that “one task for makers of critical social form is to offer not just judgment about positions and practices in the world, but terms of transition that alter the harder and softer, tighter and looser infrastructures of sociality itself” (p. 393). The political subject of infrastructure is not just the subject for whom infrastructure is an instrument of various violent and failing sovereignties, or the site for contesting them. This subject is also a maker of critical social *form* (not just arguments), a carrier of the destituent powers of building, repairing, caring, provisioning, planning, and kin-making. These are the powers of “non-sovereign relationality” that Berlant (2016) describes as “the foundational quality of being in common” (p. 394). Enacting these powers takes the material form of infrastructure, not speech. Infrastructure is the form that politics takes in troubling times, under conditions where existing political economies become or are rendered inoperative, a way of mediating relations between humans, and between humans and the non-speaking others they depend on and who depend on them. Under these conditions, “*the question of politics becomes identical with the reinvention of infrastructures for managing the unevenness, ambivalence, violence and ordinary contingency of contemporary existence*” (Berlant, 2016, p. 394, emphasis added). Infrastructures become the means, or staging ground, for “the nonreproductive making of life”—for making lives that do not simply reproduce the relations that structure the present, ad infinitum. In this sense, Berlant (2020) has recently described herself as “an infrastructuralist”: “I am interested in the build. I am interested in how we build out difference from within the world we are living in ... trying to build out infrastructures for collective life that refuse the one we

are living” (n.p.). Here, infrastructure names the collective practice of literally making a difference.

A similar orientation toward infrastructure and politics is evident in Métis scholar Michelle Murphy’s (2018) stirring account of the politics of “alterlife,” the politics of anti-racist, queer, and decolonial reproductive and environmental justice:

Alterlife resides in ongoing uncertain aftermaths, continually challenged by violent infrastructures, but also holding capacities to alter and be altered—to recompose relations to land and sociality, to love and sex, to survival and persistence, to undo some forms of life and be supported by others, to become alter-wise in the aftermath of hostile conditions, to surprise. (p. 117)

The surprises of alterlife take infrastructural forms. Alterlife politics attend to “what relations should be dismantled, refused and shunned ... and which kinships, supports, structures, and beings get to have a future” (p. 110), questions whose answers invariably take the form of infrastructural dismantling and making, respectively. In particular, this politics takes the form of dismantling infrastructures that reproduce the separation of certain human bodies from others, and from lands, waters, air, and non-human beings to enable the extraction, exploitation, and exhaustion of the latter for the benefit of the former. And it takes the form of building and supporting infrastructures that materialize being otherwise, in ways that enable life chances and careful, responsible relations, instead of selectively and unequally disabling and destroying them.

This is likely what Deborah Cowen (2020) means when, in the contributor’s note for her article with Winona LaDuke, she declares that she is “deeply committed to the transformative potential of infrastructure” (p. 432). As LaDuke and Cowen (2020) write,

despite the severity of the situation, the future is not foreclosed. We have agency, and life is magical. In Anishinaabe prophecy, this is the moment of choice, when two paths open before us ... we suggest the choosing a good path requires the revolutionary but also profoundly practical work of infrastructure. (p. 244)

Beyond Wiindigo infrastructure lies what they call “alimentary infrastructure—infrastructure that is life-giving in its design, finance and effects” (p. 245). “Infrastructure is the spine of the Wiindigo,” they write, “but it is also the essential architecture of transition to a decolonized future” (p. 246). LaDuke and Cowen (2020) highlight several examples of the practical, decolonizing work of infrastructure in contemporary Indigenous communities: the Kayenta solar project, owned and operated by the Navajo Nation, which is the largest tribally owned renewable energy plant in the United States; the Eighth Fire Solar project at White Earth reservation in Northern Minnesota, where La Duke’s own hemp manufac-

turing operation has also reached infrastructural scale; renewable energy infrastructure projects underway in multiple Indigenous communities in Canada (see also Kinder, 2021); agricultural and logistical infrastructures to enable food security and medical supplies for remote Indigenous communities in Canada; “solutionary rail” systems that run on renewable energy in the United States; and infrastructures of social, spiritual, and mental healthcare across multiple Indigenous communities. Initiatives such as these are but the latest examples in a very long historical line in which Indigenous communities, activists, and leaders have responded to the infrastructural violence of settler colonialism with infrastructural plans of their own (Coulthard, 2014).

Conclusion

This inquiry into the potential of infrastructure as a form of politics beyond words began with Spice’s (2018) radical suggestion that the word infrastructure itself cannot be unburdened of its historical association with (racial) capitalism and (settler) colonialism, and so might foreclose other ways of being that are in resistance or alternative to these persistent formations, including Indigenous relational ontologies and futures. In this case, infrastructure would be the very name of violent dispossession, extraction, exploitation, and environmental injustice. Generously, Spice (2018) posed this provocation in the form of a question: “*Does the word infrastructure itself denote an apparatus of domination?*” (p. 48, emphasis added), which invites the consideration of more than one possible answer.

Based on a canvas of recent interdisciplinary attention to the politics of infrastructure, my own answer to this question is: sometimes. It is certainly the case that when the word “infrastructure” is uttered by industrialists, developers, financiers, and their representatives in the settler-colonial state, it means exactly what Spice (2018) says it does: “the circulation of certain materials, the proliferation of certain worlds, the reproduction of certain subjects” (p. 50), essentially, the materials, worlds, and subjects of capitalist extraction, dispossession, and exploitation. However, when it is invoked by others, it seems to point to something else, something akin to what Spice (2018) herself describes as “an opening in which other possibilities can assert themselves” (p. 50). Sometimes these possibilities rest on resisting invasive and destructive infrastructures. Sometimes they rest on dismantling infrastructures that support and protect some lives and forms of life at the expense of others. Sometimes they rest on defending and protecting infrastructures that sustain diverse lives and relations in particular settings, such as when Wet’suwet’en land defender Freda Huson, describing the berry patches, salmon habitats, and ursine ecologies threatened by the Coastal GasLink pipeline, says, “*that whole cycle and system is our critical infrastructure, and that’s what we’re trying to protect, an infrastructure that we depend on*” (quoted in Spice 2018, p. 41, emphasis in original). And, sometimes, holding open other possibilities demands

building, repairing, and maintaining infrastructures that destitute, or “fail,” to reproduce existing ways of living that are unjust or destructive and that constitute better, more just ways.

These are the modes of politics in infrastructural form. It is a form of politics whose ontology rests not on the variable currency of words spoken to justify or persuade (including the word “infrastructure” itself) but on the relative durability of embodied relations and the material arrangements by which they are mediated. As Spice (2018) writes, “The work of undoing settler colonial invasion requires blocking, resisting, and suspending the infrastructures of oil and gas and the systemic dominance of capitalism. It also requires attending to and caring for the networks of relations that make Indigenous survival possible” (p. 52). I would give the material forms taken by these networks of attention and care the name “infrastructure.” Spice (2018), perhaps, would not, but this might be beside the point. Her careful description of the specific challenges facing Indigenous communities vis-à-vis settler colonial infrastructure applies even more broadly to the work of politics under conditions of environmental and relational duress. Such conditions demand a politics that is something more than just a good argument, better representation, lively debate, and an agreement to disagree. They demand a politics oriented toward unmaking material infrastructures of inequality, exploitation, and environmental destruction, and replacing them with infrastructures that make possible more just, caring, and environmentally responsible ways of living. Communication and media studies have always attended to communication and mediation in infrastructural ways; recent work in the broader interdisciplinary field of infrastructure studies raises the stakes of this attention considerably. What are the practices of information, mediation, and communication characteristic of, or proper to, a politics beyond words that takes the form of infrastructure? The work gathered by this special edition marks an important step toward answering this question.

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Note

1. There are good reasons to be wary of a wholesale repudiation of critique. On the liabilities of this position as it manifests in some versions of posthumanism, see Dana Luciano and Mel Chen (2015).

References

- Acland, Charles R. (2006). *Residual media*. Minneapolis, MN: University of Minnesota Press.
- Acland, Charles R., & Buxton, William J. (Eds.). (1999). *Harold Innis in the new century: Reflections and refractions*. Montréal, QC: McGill-Queen's University Press.
- Agamben, Giorgio. (2014). What is a destituent power? *Environment and Planning D: Society and Space*, 32(1) 65–74.
- Agamben, Giorgio. (2015). *Stasis: Civil war as a political paradigm*. Edinburgh, SC: Edinburgh University Press.
- Alaimo, Stacy. (2016). *Exposed: Environmental politics and pleasures in posthuman times*. Minneapolis, MN: University of Minnesota Press.
- Anand, Nikhil, Gupta, Akhil, & Appel, Hannah (Eds.). (2018). *The promise of infrastructure*. Durham, NC: Duke University Press.
- Andrejevic, Mark. (2007). *ISpy: Surveillance and power in the interactive era*. Lawrence, KS: Kansas University Press.
- Appel, Hannah, Anand, Nikhil, & Gupta, Akhil. (2018). Temporality, politics and the promise of infrastructure. In N. Anand, A. Gupta, & H. Appel (Eds.), *The promise of infrastructure* (pp. 1–38). Durham, NC: Duke University Press.
- Arboleda, Martin. (2020). *Planetary mine: Territories of extraction under late capitalism*. London, UK: Verso.
- Baker, Janelle. (2020). Do berries listen? Berries as indicators, ancestors, and agents in Canada's oil sands region. *Ethnos*, 86(2), 273–294.
- Barad, Karen. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.
- Barney, Darin. (2004). *The network society*. London, UK: Polity.
- Barney, Darin. (2020). Withdrawal symptoms: Refusal, sabotage, suspension. In Pepita Hesselberth & Joost de Bloois (Eds.), *Politics of withdrawal: Media, arts, theory* (pp. 115–132). Lanham, MD: Rowman & Littlefield.
- Barry, Andrew. (2013). *Material politics: Disputes along the pipeline*. London, UK: Wiley.
- Bell, Susan, & Longchap, Betsy. (2020, February 17). \$4.7B “Grande Alliance” agreement in northern Quebec is called Cree vision of development. *CBC News*. URL: www.cbc.ca/news/canada/north/cree-development-quebec-abel-bosum-fran%C3%A7ois-legault-grande-alliance-1.5466612 [February 20, 2020].
- Benjamin, Ruha. (2018). Black AfterLives Matter: Cultivating kinfulness as reproductive justice. In A. Clarke & D. Haraway (Eds.), *Making kin not population* (pp. 41–66). Chicago, IL: Prickly Paradigm Press.
- Benjamin, Ruha. (2019). *Race after technology: Abolitionist tools for the New Jim Code*. London, UK: Polity.
- Bennett, Jane. (2010). *Vibrant matter: A political ecology of things*. Durham, NC: Duke University Press.
- Berlant, Jody. (2009). *North of empire: Essays on the cultural technologies of space*. Durham, NC: Duke University Press.
- Berlant, Lauren. (2016). The commons: Infrastructures for troubling times. *Environment and Planning D: Society and Space*, 34(3), 393–419.
- Berlant, Lauren. (2020, November 19). *The unfinished business of cruel optimism. 2020 Lynch Lecture*. Bonham Centre for Sexual Diversity Studies, University of Toronto, Toronto, Ontario, Canada.
- Borrows, John. (2019). *Law's indigenous ethics*. Toronto, ON: University of Toronto Press.
- Boutros, Alexandra, & Straw, Will (Eds.). (2010). *Circulation and the city: Essays on urban culture*. Montréal, QC: McGill-Queens University Press.
- Braidotti, Rosi. (2013). *The posthuman*. London, UK: Polity Press.
- Brennan, Shane. (2017). Visionary infrastructure: Community solar streetlights in Highland Park. *Journal of Visual Culture*, 16(2), 167–189.
- Brown, Wendy. (2005). *Edgework: Critical essays on knowledge and politics*. Princeton, NJ: Princeton University Press.
- Browne, Simone. (2015). *Dark matters: On the surveillance of blackness*. Durham, NC: Duke University Press.

- Butler, Judith. (2015). *Notes toward a performative theory of assembly*. Cambridge, MA: Harvard University Press.
- Butler, Judith. (2016). Rethinking vulnerability and resistance. In J. Butler, Z. Gambetti, & L. Sabsay (Eds.), *Vulnerability in resistance* (pp. 12–27). Durham, NC: Duke University Press.
- Byrd, Jodi A. (2011). *The transit of empire: Indigenous critiques of colonialism*. Minneapolis, MN: University of Minnesota Press.
- Carey, James, W. (1989). *Communication as culture: Essays on media and society*. New York, NY: Routledge.
- Carlson, Hans M. (2009). *Home is the hunter: The James Bay Cree and their land*. Vancouver, BC: University of British Columbia Press.
- Carse, Ashley. (2014). *Beyond the big ditch: Politics, ecology, and infrastructure at the Panama Canal*. Cambridge, MA: MIT Press.
- Castells, Manuel. (2011). *The rise of the network society*. London, UK: Wiley Blackwell.
- Connolly, William E. (2017). *Facing the planetary: Entangled humanism and the politics of swarming*. Durham, NC: Duke University Press.
- Coulthard, Glen. (2014). *Red skin, white masks rejecting the colonial politics of recognition*. Minneapolis, MN: University of Minnesota Press.
- Cowen, Deborah. (2014). *The deadly life of logistics: Mapping violence in global trade*. Minneapolis, MN: University of Minnesota Press.
- Cowen, Deborah. (2018). The jurisdiction of infrastructure: Circulation and Canadian settler colonialism. *The Funambulist*, 17(May-June), 14–19. URL: <https://thefunambulist.net/magazine/weaponized-infrastructure> [February 14, 2020].
- Cowen, Deborah. (2020). Notes on contributors. *South Atlantic Quarterly*, 119(2), 432.
- Crawford, Kate. (2021). *Atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. New Haven, CT: Yale University Press.
- Cubitt, Sean. (2016). *Finite media*. Durham, NC: Duke University Press.
- Day, Iyko. (2016). *Alien capital: Asian racialization and the logic of settler colonial capitalism*. Durham, NC: Duke University Press.
- de la Cadena, Marisol (2015). *Earth beings: Ecologies of practice across Andean worlds*. Durham, NC: Duke University Press.
- Desbiens, Caroline. (2013). *Power from the North: Territory, identity, and the culture of hydroelectricity in Québec*. Vancouver, BC: University of British Columbia Press.
- Devine, Kyle. (2019). *Decomposed: The political ecology of music*. Cambridge, MA: MIT Press.
- Dubrofsky, Rachel E., & Magnet, Shoshana Amielle. (2015). *Feminist surveillance studies*. Durham, NC: Duke University Press.
- Easterling, Keller. (2014). *Extrastatecraft: The power of infrastructure space*. London, UK: Verso.
- Edwards, Paul N. (2003). Infrastructure and modernity: Force, time, and social organization in the history of sociotechnical systems. In T.J. Misa, P. Brey, & A. Feenberg (Eds.), *Modernity and technology* (pp. 185–202). Cambridge, MA: MIT Press.
- Elam, Mark. (1994). Anti-anticonstructivism, or laying the fears of a Langdon Winner to rest. *Science, Technology and Human Values*, 19(1), 101–106.
- Enns, Charis, & Bersaglio, Brock. (2020). On the coloniality of new megainfrastructure projects in East Africa. *Antipode*, 52(1), 101–123.
- Ferguson, Kennan. (2003). Silence: A politics. *Contemporary Political Theory*, 2(1), 49–65.
- Gabrys, Jennifer. (2016). *Program Earth: Environmental sensing technology and the making of a computational planet*. Minneapolis, MN: University of Minnesota Press.
- Gabrys, Jennifer. (2019). *How to do things with sensors*. Minneapolis, MN: University of Minnesota Press.
- Gaonkar, Dilip, & Povinelli, Elizabeth A. (2003). Technologies of public forms: Circulation, transfiguration, recognition. *Public Culture*, 15(3), 385–398.
- Gates, Kelly. (2011). *Our biometric future: Facial recognition technology and the culture of surveillance*. New York, NY: New York University Press.
- Gillespie, Tarleton. (2018). *Custodians of the internet: Platforms, content moderation, and the hidden decisions that shape social media*. New Haven, CT: Yale University Press.

- Gillespie, Tarleton, Boczkowski, Pablo J., & Foot, Kirsten A. (Eds.). (2014). *Media technologies: Essays on communication, materiality, and society*. Cambridge, MA: MIT Press.
- Gilmore, Ruth Wilson. (2007). *Golden gulag: Prisons, surplus, crisis, and opposition in globalizing California*. Berkeley, CA: University of California Press.
- Gitelman, Lisa. (2006). *Always already new: Media, history and the data of culture*. Cambridge, MA: MIT Press.
- Gómez-Barris, Macarena. (2017). *The extractive zone: Social ecologies and decolonial perspectives*. Durham, NC: Duke University Press.
- Gordillo, Gastón R. (2014). *Rubble: The afterlife of destruction*. Durham: Duke University Press.
- Gordillo, Gastón. (2019). The metropolis: The infrastructure of the Anthropocene. In K. Hetherington (Ed.), *Infrastructure, environment and life in the Anthropocene* (pp. 66–94). Durham, NC: Duke University Press.
- Graham, Stephen, & Thrift, Nigel. (2007). Out of order: Understanding repair and maintenance. *Theory, Culture and Society*, 24(3), 1–25.
- Gumbrecht, Hans Ulrich, & Pfeiffer, Karl Ludwig. (1994). *Materialities of communication*. Redwood, CA: Stanford University Press
- Gupta, Akhil. (2018). The future in ruins: Thoughts on the temporality of infrastructure. In N. Anand, A. Gupta, & H. Appel (Eds.), *The promise of infrastructure* (pp. 62–79). Durham, NC: Duke University Press.
- Halberstam, Jack. (2013). The wild beyond: With and for the undercommons. In S. Harney & F. Moten (Eds.), *The undercommons: Fugitive planning & black study* (pp. 5–12). Brooklyn, NY: Autonomedia.
- Hamraie, Aimi. (2017). *Building access: Universal design and the politics of disability*. Minneapolis, MN: University of Minnesota Press.
- Haraway, Donna. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Durham, NC: Duke University Press.
- Harney, Stefano, & Moten, Fred. (2013). *The undercommons: Fugitive planning & black study*. Brooklyn, NY: Autonomedia.
- Harvey, Penny, & Knox, Hannah. (2015). *Roads: An anthropology of infrastructure and expertise*. Ithaca, NY: Cornell University Press.
- Innis, Harold. (1962). *The fur trade in Canada*. Toronto: University of Toronto Press.
- Invisible Committee. (2015). *To our friends*. South Pasadena, CA: Semiotext(e).
- Invisible Committee. (2017). *Now*. South Pasadena, CA: Semiotext(e).
- Joerges, Bernward. (1999). Do politics have artefacts? *Social Studies of Science*, 29(2), 411–431.
- Johnson, Rhiannon. (2020, February 10). RCMP arrests in Wet'suwet'en territory spark protests nationwide. *CBC News*. URL: <https://www.cbc.ca/news/indigenous/wetsuweten-solidarity-actions-roundup-1.5458383> [February 14, 2020].
- Karuka, Manu. (2019). *Empire's tracks: Indigenous Nations, Chinese workers, and the transcontinental railroad*. Berkeley, CA: University of California Press.
- Khalili, Laleh. (2020). *Sinews of war and trade: Shipping and capitalism in the Arabian peninsula*. London, UK: Verso.
- Kinder, Jordan B. (2021). Solar infrastructure as media of resistance, or, Indigenous solarities against settler colonialism. *South Atlantic Quarterly*, 120(1), 63–76.
- Kittler, Friedrich A. (1999). *Gramophone, film, typewriter*. Redwood, CA: Stanford University Press.
- Kohn, Eduardo. (2013). *How forests think: Toward an anthropology beyond the human*. Oakland, CA: University of California Press.
- LaDuke, Winona, & Cowen, Deborah. (2020). Beyond Wiindigo infrastructure. *South Atlantic Quarterly*, 119(2), 243–268.
- Larkin, Brian. (2008). *Signal and noise: Media, infrastructure, and urban culture in Nigeria*. Durham, NC: Duke University Press.
- Larkin, Brian. (2013). The politics and poetics of infrastructure. *Annual Review of Anthropology*, 42(1), 327–343.
- Latour, Bruno. (2004). *Politics of nature: How to bring the sciences into democracy*. Cambridge, MA: Harvard University Press.

- Lightfoot, Sheryl. (2018). *Global Indigenous politics: A subtle revolution*. London, UK: Routledge
- Lowe, Lisa (2014). *The intimacies of four continents*. Durham, NC: Duke University Press.
- Luciano, Dana, & Chen, Mel Y. (2015). Has the queer ever been human? *GLQ*, 21(2-3), 183–196.
- Lyon, David. (2001). *Surveillance society: Monitoring everyday life*. London, UK: Open University Press.
- Magnet, Shoshana. (2011). *When biometrics fail: Gender, race, and the technology of identity*. Durham, NC: Duke University Press.
- Martin, Michèle. (1991). "Hello, Central?" *Gender, technology, and culture in the formation of telephone systems*. Montréal, QC: McGill-Queen's University Press.
- Mattelart, Armand. (2000). *Networking the world, 1794–2000*. Minneapolis, MN: University of Minnesota Press.
- McCarty, Emily. (2019). The complicated history of hereditary chiefs and elected councils. *First Nations Drum*, 4(February). URL: <http://www.firstnationsdrum.com/2019/02/the-complicated-history-of-hereditary-chiefs-and-elected-councils/> [March 1, 2021].
- McIntosh, Emma. (2020, February 6). RCMP conduct pre-dawn raids on Wet'suwet'en land defender camps. *Canada's National Observer*. URL: <https://www.nationalobserver.com/2020/02/06/news/rcmp-begin-pre-dawn-raids-wetsuweten-land-defender-camps> [February 14, 2020].
- McKelvey, Fenwick. (2018). *Internet daemons: Digital communications possessed*. Minneapolis, MN: University of Minnesota Press.
- Medina, Eden. (2011). *Cybernetic revolutionaries: Technology and politics in Allende's Chile*. Cambridge, MA: MIT Press.
- Mezzadra, Sandro, & Neilson, Brett. (2019). *The politics of operations: Excavating contemporary capitalism*. Durham, NC: Duke University Press.
- Mitchell, Timothy. (2002). *Rule of experts: Egypt, techno-politics, modernity*. Berkeley, CA: University of California Press.
- Mukherjee, Rahul. (2020). *Radiant infrastructures: Media, environment, and cultures of uncertainty*. Durham, NC: Duke University Press.
- Murphy, Michelle. (2018). Against population, towards alterlife. In A. Clarke & D. Haraway (Eds.), *Making kin not population*. Chicago, IL: Prickly Paradigm Press.
- Noble, Safiya Umoja. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York, NY: NYU Press.
- Packer, Jeremy, & Crofts Wiley, Stephen B. (2013). *Communication matters: Materialist approaches to media, mobility and networks*. London, UK: Routledge.
- Panagia, Davide. (2009). *The political life of sensation*. Durham, NC: Duke University Press.
- Parikka, Jussi. (2012). *What is media archaeology?* London, UK: Wiley.
- Parikka, Jussi. (2015). *A geology of media*. Minneapolis, MN: University of Minnesota Press.
- Parks, Lisa. (2005). *Cultures in orbit: Satellites and the televisual*. Durham, NC: Duke University Press.
- Parks, Lisa, & Starosielski, Nicole. (2015). *Signal traffic: Critical studies of media infrastructure*. Urbana, IL: University of Illinois Press.
- Pasternak, Shiri. (2017). *Grounded authority: The Algonquins of Barriere Lake against the state*. Minneapolis, MN: University of Minnesota Press.
- Pasternak, Shiri. (2020, February 7). *Wet'suwet'en: Why are Indigenous rights being defined by an energy corporation?* Toronto, ON: Yellowhead Institute. URL: <https://yellowheadinstitute.org/2020/02/07/why-are-indigenous-rights-being-defined-by-an-energy-corporation/> [March 1, 2021].
- Pasternak, Shiri & Dafnos, Tia. (2018). How does a settler state secure the circuitry of capital? *Environment and Planning D: Society and Space*, 36(4), 739-757.
- Perreaux, Les, Atkins, Eric, & Andrew-Gee, Eric. (2020, February 12). Industry groups warn rail protests are hurting supply chain. *Globe & Mail*. URL: <https://www.theglobeandmail.com/canada/article-retailers-and-manufacturers-brace-for-shutdowns-as-pipeline-protests> [February 14, 2020].
- Perry, Adele. (2016). *Aqueduct: Colonialism, resources, and the histories we remember*. Winnipeg, MB: ARP Books.

- Peters, Benjamin. (2016). *How not to network a nation: The uneasy history of the soviet internet*. Cambridge, MA: MIT Press.
- Peters, John Durham. (2015). *The marvelous clouds: Toward a philosophy of elemental media*. Chicago, IL: University of Chicago Press.
- Pinchevski, Amit. (2011). Bartleby's autism: Wandering along incommunicability. *Cultural Critique*, 78(1) 27–59.
- Povinelli, Elizabeth. (2016). *Geontologies: A requiem to late liberalism*. Durham, NC: Duke University Press.
- Puig de la Bellacasa, María. (2017). *Matters of care: Speculative ethics in more than human worlds*. Minneapolis, MN: University of Minnesota Press.
- Rezaei, Maryam, & Dowlatabadi, Hadi. (2016). Off-grid: Community energy and the pursuit of self-sufficiency in British Columbia's remote and First Nations communities. *Local Environment*, 21(7), 789–807.
- Rifkin, Mark. (2014). *Beyond settler time: Temporal sovereignty and Indigenous self-determination*. Durham, NC: Duke University Press.
- Rossiter, Ned. (2016). *Software, infrastructure, labor: A media theory of logistical nightmares*. New York, NY: Routledge.
- Ruiz, Rafico. (2021). *Slow disturbance: Infrastructural mediation on the settler colonial resource frontier*. Durham, NC: Duke University Press.
- Scheller, Mimi. (2014). *Aluminum dreams: The making of light modernity*. Cambridge, MA: MIT Press.
- Scott, James C. (1985). *Weapons of the weak: Everyday forms of peasant resistance*. New Haven, CT: Yale University Press.
- Senate of Canada. (2015). *On-reserve housing and infrastructure: Recommendations for change*. Standing Senate Committee on Aboriginal Peoples. Ottawa, ON: Senate Committees Directorate. URL: <https://sencanada.ca/content/sen/Committee/412/appa/rep/rep12jun15-e.pdf> [February 26, 2020].
- Simone, AbdouMaliq. (2004). People as infrastructure: Intersecting fragments in Johannesburg. *Public Culture*, 16(3), 407–429.
- Simpson, Audra. (2017). The ruse of consent and the anatomy of 'refusal': Cases from Indigenous North America and Australia. *Postcolonial Studies*, 20(1), 18–33.
- Smith, Charlie. (2019, December 21). Gidim'ten spokesperson Sleydo', a.k.a. Molly Wickham, accuses RCMP of acting as mercenaries for industry. *Georgia Straight*. URL: <https://www.straight.com/news/1339641/gidimten-spokesperson-sleydo-aka-molly-wickham-accuses-rcmp-acting-mercenaries-industry> [February 14, 2020].
- Spice, Anne. (2018). Fighting invasive infrastructures: Indigenous relations against pipelines. *Environment and Society: Advances in Research*, 9(1), 40–56.
- Spivak, Gayatri Chakravorty. (1988). Can the subaltern speak? In C. Nelson & L. Grossberg (Eds.), *Marxism and the interpretation of culture* (pp. 271–313). Urbana, Ill: University of Illinois Press.
- Srnicek, Nick. (2016). *Platform capitalism*. London, UK: Polity.
- Stamm, Michael. (2018). *Dead tree media: Manufacturing the newspaper in twentieth-century North America*. Baltimore, MD: Johns Hopkins University Press.
- Star, Susan L. (1999). The ethnography of infrastructure. *American Behavioral Scientist*, 43(3), 377–391.
- Starosielski, Nicole, & Walker, Janet. (2016). *Sustainable media: Critical approaches to media and environment*. New York, NY: Routledge.
- Starosielski, Nicole. (2015). *The undersea network*. Durham, NC: Duke University Press.
- Stengers, Isabelle. (2010). *Cosmopolitics I*. Minneapolis, MN: University of Minnesota Press.
- Sterne, Jonathan (2012). *MP3: The meaning of a format*. Durham, NC: Duke University Press.
- Straw, Will. (2010). The circulatory turn. In B. Crow, M. Longford, & K. Sawchuk (Eds.), *The wireless spectrum: The politics, practices and poetics of mobile media* (pp. 17–28). Toronto, ON: University of Toronto Press.
- TallBear, Kim. (2018). Making love and relations beyond settler sex and family. In A. Clarke & D. Haraway (Eds.), *Making kin not population* (pp. 144–164). Chicago, IL: Prickly Paradigm Press.
- Todd, Zoe. (2016). An Indigenous feminist's take on the ontological turn: 'Ontology' is just another word for colonialism. *Journal of Historical Sociology*, 29(1), 4–22.

- Truscello, Michael. (2020). *Infrastructural brutalism: Art and the necropolitics of infrastructure*. Cambridge, MA: MIT Press.
- Tsing, Anna Lowenhaupt. (2015). *The mushroom at the end of the world: On the possibility of life in the capitalist ruins*. Princeton, NJ: Princeton University Press.
- Unist'ot'en Camp. (2020). UNIST'OT'EN: Heal the people, heal the land. URL: <http://unistoten.camp/> [February 14, 2020].
- Viveiros de Castro, Eduardo. (2015). *The relative native: Essays on indigenous conceptual worlds*. Chicago, IL: HAU Books.
- von Schnitzler, Antina. (2018). Infrastructure, apartheid technopolitics, and temporalities of transition. In N. Anand, A. Gupta, & H. Appel (Eds.), *The promise of infrastructure* (pp. 133–154). Durham, NC: Duke University Press.
- Watts, Vanessa. (2013). Indigenous place-thought & agency amongst humans and non-humans (First Woman and Sky Woman go on a European world tour!). *Decolonization: Indigeneity, Education & Society*, 2(1) 20–34.
- Whyte, Kyle Powys. (2016). Indigenous experience, environmental justice and settler colonialism. In B. Bannon (Ed.), *Nature and experience: Phenomenology and the environment* (pp. 157–174). Lanham, MD: Rowman & Littlefield.
- Williams, Evan Calder. (2016, March 21). Manual override. *The New Enquiry*, 50. URL: <https://thenewinquiry.com/manual-override/> [February 12, 2020].
- Wilson, Ara. (2016). The infrastructure of intimacy. *Signs: Journal of Women in Culture and Society*, 41(2), 247–280.
- Winner, Langdon. (1980, Winter). Do artifacts have politics? *Daedalus*, 109(1), 121–136.
- Winner, Langdon. (1986). *The whale and the reactor: A search for limits in the age of high technology*. Chicago, IL: University of Chicago Press.
- Winner, Langdon. (1993). Upon opening the black box and finding it empty. *Science, Technology and Human Values*, 18(3), 362–378.
- Winner, Langdon. (1994). Reply to Mark Elam. *Science, Technology and Human Values*, 19(1), 107–109.
- Wolfe, Patrick. (2006). Settler colonialism and the elimination of the native. *Journal of Genocide Research*, 8(4), 387–409.
- Woolgar, Steve. (1991). The turn to technology in social studies of science. *Science, Technology and Human Values*, 16(1), 20–50.
- Woolgar, Steve, & Cooper, Geoff. (1999). Do artefacts have ambivalence? Moses' bridges, Winner's bridges and other urban legends in S&TS. *Social Studies of Science*, 29(3), 433–449.
- Young, Liam Cole. (2017). Innis's infrastructure: Dirt, beavers, and documents in material media theory. *Cultural Politics*, 13(2), 227–249.
- Zien, Katherine. (2017). *Sovereign acts: Performing race, space, and belonging in Panama and the Canal Zone*. New Brunswick, NJ: Rutgers University Press.
- Zuboff, Shoshana. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York, NY: Public Affairs.