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Data plantation: Northern Virginia and the territorialization of digital civilization in "the Internet Capital of the World"

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Abstract

Purpose: The development of the Northern VA and the Washington, DC metro area as a key node in the globalizing digital urban system is well established. This essay investigates the growth of that technological geography in the 1990s and 2000s as a part of the planetary epoch of human transformation that some have called the "Plantationocene" (vs. Anthropocene).
Approach: A historical and critical interpretive analysis of race, landscape, and technology policy in the Northern VA area.
Findings: The paper establishes the region's social attachments to its "bucolic" agrarian landscape, rooted in the US Civil War and vast inequalities of the reimposition of the plantation as an "afterlife of slavery" after Reconstruction's failure. It then suggests that the conditions of the plantation economy within a kind of digital plantation economy—featuring resource monopolies, extractive forms of exploitation, and monocrop "ecologies"—based on the "Server Farming" (aka, data center) industry through which some 70 % of the world's Internet traffic flows. It looks at this digital aspect of the Plantationocene as post-Bellum and insurgent, in which the manipulation of history, the accumulation and control of 'arable' (digital) land, and the dispossession of social processes under quasi-feudalistic property rights encourage unequal, unsustainable, and often violent cultures and political ecologies.

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Practical implications: Researchers considering digital urbanism might use this approach to understand online and offline geographies of the contemporary media industry.
Social implications: It treats the contemporary anti-government and ethno-nationalist movements growing in digital mediation as part of a much longer and unsettled planetary conflict over the plantation system, racialized social inequality, and the abolition of slavery.
Originality/value: While some work on "data colonialism" implicitly connects digital urbanism to the mostly agriculturally-focused work on the Plantationocene, this essay makes the connection explicit, place-based in specific historical-geographical contexts, and focused on the roles of specific political economic actors.

Keywords: data center; digital cities; internet infrastructure; Northern Virginia; Plantationocene; right to the city

> [T]hese economic forms are designed to reproduce the basic features of plantation capitalism: resource monopoly; extreme ethnic, class, racial, and gender polarization; an export orientation; and the intense regulation of work, family, speech, and thought.
>
> —Clyde Woods 2007.

1 Introduction

Northern Virginia (NOVA) is a region in the eastern US, near Washington DC. In February 2022, Google (worth $1.853 trillion, April 2022) announced that its data center community grant program would provide a $50,000 grant to the Friends of the Slave Quarters, a group supporting the site and educational mission of the Arcola Quarters of the Enslaved, built around 1800 and located at what is now 24,837 Evergreen Mills Rd in Sterling, VA (Loudoun County) (LoudounNow 2022). The Quarters are one of the few remaining vestiges of the material history of human enslavement in the area, thanks largely to its unusual stone construction (DHR 2008). They are part of a larger struggle to preserve sites of Black life and history in greater NOVA, where some counties' populations were as much as 50 % enslaved in 1860 (without accounting for free Black people) (Graham and Hergesheimer 1861). Google's head of Community Development for the Eastern US, Laurel Brown, remarked on the occasion, "Located across the street from our data center, The Arcola Quarters of the Enslaved is in the heart of our community" (LoudounNow 2022). Google constructed one of its data center facilities across the street from the Quarters (Figure 1).

Over the last half-century or more, NOVA's landscape has replaced farmland with massive expanses of Internet infrastructure called "data centers" or, by some there, "server farms" (Freed 2016; Mekouar 2020; Shaw 2020; VEDP 1999). CBS News' *Sunday Morning* called NOVA "the heart of 'The Cloud'" in a 2017 feature, through which they and others claim "up to 70 % of the world's internet traffic passes every

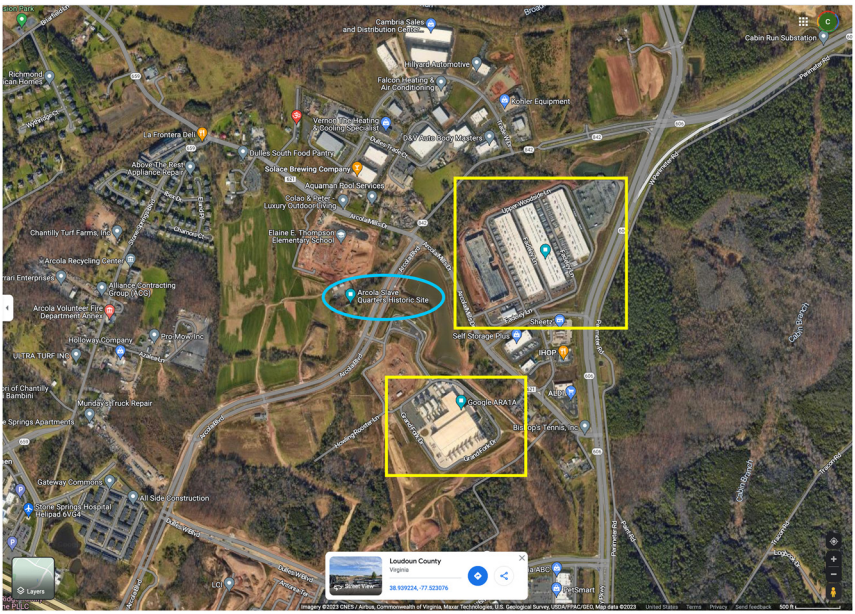

Figure 1: Historic Arcola slave quarters (blue circle) site across the street from Google data center (yellow rectangles) in new Loudoun County development. Source: Google Maps.

day" (see also, Freed 2016; Sunday Morning 2017; Klein 2019). This essay shows why the juxtaposition above is not mere coincidence and argues that we see parts of the internet economy's infrastructure as *data plantations*, which "reproduce the basic features of plantation capitalism," in Woods' words above. Therefore, we see them as part of the larger epoch of planetary transformation and crisis some have called the "Plantationocene" (Davis et al. 2019; Haraway 2015). That epoch is defined by contemporary crises of economic polarization and destitution, ecological collapse, political violence, and intersecting forms of human and non-human social domination. While pundits wring their hands about the "existential threat" presented by innovations in "artificial intelligence," they elide that the Plantationocene has already brought us to the brink. Data plantations should be part of that analysis.

NOVA, within the greater Washington, DC metropolitan area (DMV), includes Alexandria city, Arlington County, and three western counties: Fairfax, Prince William, and Loudoun (see Figure 2). Since the mid-late 20th Century, it has gradually become a sprawling region of 'McMansion' housing tracts, 'town centres' and strip malls (many with remarkable ethnic food from recent-immigrant communities), some of the nation's worst traffic, and growing air quality concerns (Ceruzzi 2008; Garreau 1992). The area also became home to a booming technology industry

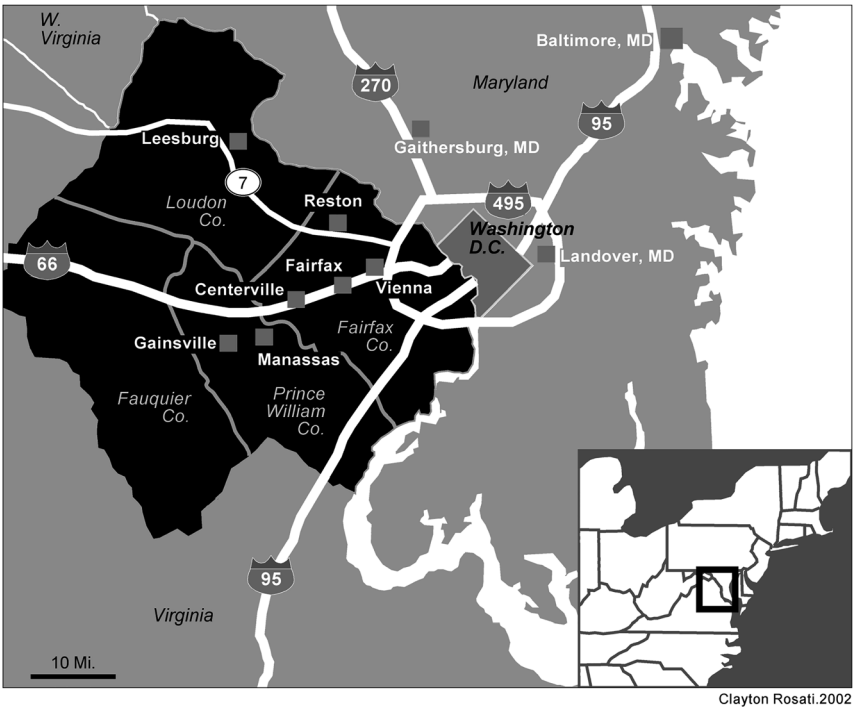

Figure 2: Map of region.

specializing in government and military contracting, and land- and energy-intensive server farms (Ceruzzi 2008; Klein 2019).

Against the high dollar spectacle of this industry, critics have begun to describe digital capitalism—what has happened to NOVA and what its urbanism has capacitated—as imperialistic, impoverishing, psychologically dangerous, anti-democratic and anti-urban. For instance, Couldry and Mejias explain, "We are concerned here with the annexation to capital of life processes … evidenced when many of the life streams from which data is extracted for value are not seen by those involved as part of any productive activity" (Couldry and Mejias 2019, 30). While "data" and the automation of management processes, first developed on plantations (Rosenthal 2018), are crucial to large-scale server farming, in this place—with its past in slavery and Civil War so close to the surface—NOVA reveals additional important homologies of one system overlaid on another. These repetitions of form are not incidental, but—as Graham Pickren suggests—indicate how data infrastructure are shaped by a variety of intersecting material processes unique to the particular, historied geographies in which they arise (Pickren 2018). As increasing numbers of data centers

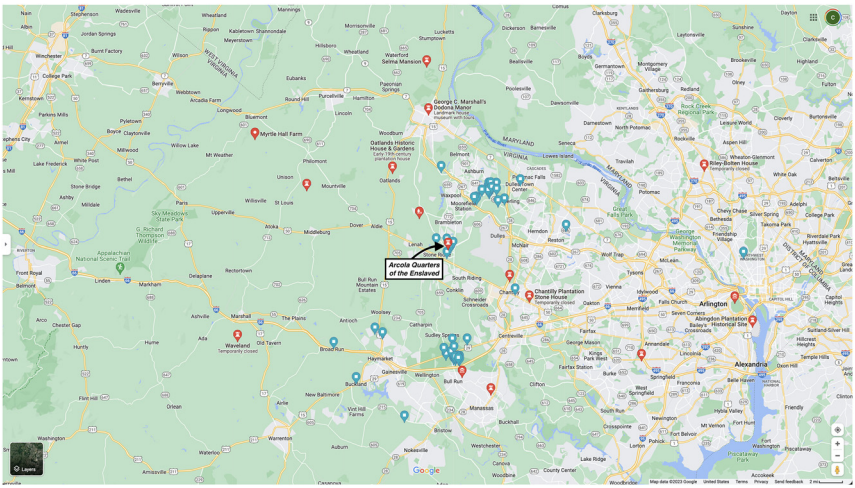

Figure 3: This map illustrates the search results for data centers (blue) "overlaid" on search results for historic antebellum plantation sites (red) in greater Northern VA. Source: Google Maps.

continue, even today, to replace what was once agricultural and undeveloped land, their accumulation illustrates how old systems and lingering social struggles for life and liberation are forged through a complex interrelation of land, technology, state power, and corporate influence.

Arcola reveals the literal overlaying of the server farming economy on the terrain of the former agrarian plantation economy. The preserved Arcola Slave Quarters historic site is now surrounded by new data center construction, along with a Sheetz gas station, a self-storage facility, a school, several housing developments, and other small industrial facilities. And the state they occupy is now fighting one of the country's most prominent battles against education on the topics of slavery and racial capitalism (see EO-1, 2022, "end the use of inherently divisive concepts, including Critical Race Theory, and to raise academic standards").

2 Towards the data plantation: context, approach and method

This paper is part of a larger project empirically and theoretically exploring NOVA's digital urbanization, on which (almost unbelievably) much of contemporary global communications and cultures are made and remade. In some ways its goal is (too) simple: to understand how this region of former plantations, farms, and woods,

became a global technology capital. But further, inspired by work like Browne's (2015) intervention in surveillance studies, it aims to bridge gaps and imagine ways to mutually enrich critical data studies (e.g., Pickren 2018) and analyses of racial capitalism (e.g., Chakravartty and Silva 2012; Ranganathan 2020; Taylor 2021). More so, rooted in innovations from the traditions of Marxist geography (e.g., Massey 1994; Mitchell 2000; Gilmore 2007; Harvey 2013), it draws on political economic analysis and synthesizes literatures on digital capitalism (Andrejevic 2019; Briziarelli and Armano 2017; Browne 2015; Fuchs 2020; Sadowski 2020; Wells et al. 2023; Zuboff 2019), digital urban systems (e.g., Foth et al. 2015), and Black/Abolitionist geographies (e.g., McKittrick and Woods 2007; Gilmore et al. 2022) to develop a theory of digital cities within the "Plantationocene," and vice versa.

The NOVA/DMV region forms a material basis of a digital urbanization, which is globalizing virtually—extensively and intensively constructing possibilities (see Lefebvre 2003, 17)—and virtualizing globally: electronically refashioning representations of space, representational spaces, and spatial practices (see Lefebvre 1992). As the title of this special issue suggests, we see contemporary digital urbanization as "civilizational." But, as critics of the so-called "Anthropocene" narrative might: we see it as something more specific than an essential phenomenon of "human" life writ large, or as a catastrophic geological force by its "nature." Instead, digital global civilization represents a hegemonic (naturalized or "atmospheric" [e.g., Adey et al. 2013; McCormack 2017]) (re-)mediation (see Williams 1978) of a set of urban problematics, which Lefebvre suggests predominate in urban (not merely industrial) society:

> How can we reconceptualize the urban phenomenon? How can we formulate, classify, and order the innumerable questions that arise, questions that move, although not without considerable resistance, to the forefront of our awareness? Can we achieve significant progress in theory and practice so that our consciousness can comprehend a reality that overflows it and a possible that flees before its grasp? (Lefebvre 2003, p. 15).

The urban problematic is, in this sense, at the heart of the analytical imperative to understand NOVA and its role in global digital civilization.

2.1 The data problematic

David Harvey eloquently captures the radical potential of Lefebvre's provocation thusly:

> [T]he question of what kind of city we want cannot be divorced from the question of what kind of people we want to be, what kinds of social relations we seek, what relations to nature we cherish, what style of life we desire, what aesthetic values we hold. The right to the city is, therefore, far more than a right of individual or group access to the resources that the city

> embodies: it is a right to change and reinvent the city more after our hearts' desire. It is, moreover, a collective rather than an individual right, since reinventing the city inevitably depends upon the exercise of a collective power over the processes of urbanization. The freedom to make and remake ourselves and our cities is, I want to argue, one of the most precious yet most neglected of our human rights. (Harvey 2008, 23)

To this point, the questions posed about, not just cities but globalizing urban processes, and their answers have been made relatively undemocratically by the powerful and propertied. Lefebvre's (unorthodox leftist) invocation of the revolutionary potential of urban social movements (vs. the industrial proletariat) and their claim of the "right to the city," as Harvey notes "primarily rises up from the streets, out from the neighborhoods, as a cry for help and sustenance by oppressed peoples in desperate times," which are notoriously often-disorganized, under-theorized, and vulnerable to counter-revolution (Harvey 2013, p. 14). Issues around data rarely rise even to that prominence, except in rare circumstances.

Yet, critical data and media studies engage with a key set of problematics around the digital economy's well-documented reliance on processes, which we see related to plantation capitalism, like: data accumulation by dispossession (Ekman 2016; Thatcher et al. 2016), unpaid digital labor (Aires 2020; Azhar 2020; Carah and Angus 2018; Dyer-Witheford 2015), debt and digital rentier economies (Di Feliciantonio 2016; Sadowski 2020), digital "scientific management" and labor surveillance (Andrejevic 2007; Rosenthal 2018), and racialized digital policing and algorithmic bias (Browne 2015; Ferguson 2017).

Some of this work analyses many of these processes together to understand the impact of digital technologies on the local characteristics of place. For instance, urban life in digital civilization is increasingly defined by economic polarization for high-paid tech workers and precarious "gig workers" (Attoh et al. 2019; Rushkoff 2017; Wells et al. 2023). Likewise, while gig workers get paid for digitally platformed services, like driving or shopping, the corporate owner of that platform accumulates and owns massive amounts of data from the process. Wells, et al.'s brilliant and empirically rich book on the rise of platform capitalism and "fall of the city" in Washington, D.C. quotes an Uber driver: "I joke, people keep talking about driverless cars, which I still think [are] way off, but, honestly, if you look at it, we're building their data … and they have it …" (Wells et al. 2023, p. 69). Sadowski theorizes how data extraction, digital enclosure, and monopoly—"or at least the aspiration of monopoly and the aggressive tactics to achieve monopoly"—are features implicit in the platform model (Sadowski 2020). The traces of social life within digital civilization, find legions of everyday scenarios—e.g., emails, phone calls, pictures, driving, etc.—expropriated into the possession of platforms and media corporations, all of which are "farmed" and "harvested" in data plantations. "Rather than being unqualified owners of personal property, we become renters at

the mercy of software licenses that transfer legal rights to rentiers" (Sadowski 2020, p. 573).

That data is collected and circulated through places like NOVA and what Cooper calls "data peripheries." They "leverage and depend on a multitude of social, political, and material conditions that proliferate well outside the standard analytical purview of data center studies" (Cooper 2021, p. 2). Such work captures the materiality of forms of digital property, automation, and surveillance even as it aims to "denaturalize the data center as the primary place where the materiality of Big Data storage is analytically accessed" (Cooper 2021, 2). Yet the urban development of "data peripheries" also merges software rentier capitalism with terrestrial landlordism. Greene's fascinating work rightly traces the development of the fixed and terrestrial storage, switching, and transmission architectures and infrastructures into an economy of landlordism: private equity funds, financial trusts, and corporations who own and compete for profitability over and through "physical foundations supporting the rest of the internet." It is not "not software developers in control, but firms like Equinix and Digital Realty," or "internet landlords" keeping real estate at the foundation of the *digital* dimensions of digital civilization (Greene 2022, 905). These insights expose the importance of land markets, even to the seemingly deterritorialized digital cultures circulating globally. But also they territorialize a longer context of Schiller's (Schiller 1991) and others' critiques of the corporate capture of public expression and even more broadly a critique of the urban processes within which we make and remake ourselves (Harvey 2008, 2013). But, how can we see them within the "Plantationocene"?

2.2 The Plantationocene, an urban problematic for the digital age

The Plantationocene describes an existential crisis (Haraway et al. 2016), but one with a long history and specifically based on a particular ordering of property, violence, and hierarchies inside and outside of the "human family" (Jackson 2023). Davis's et al. (2019) comment that Haraway and others' early overly ecological experiments with the concept of the Plantationocene are less essentialist and reductionist replacements for the Anthropocene or Capitalocene. But, as Davis et al. also critique, "human labor receives brief attention and is conceived as only one element within the broader constellation of exploited lifeforms underpinning historical and present-day plantation economies" (Davis et al. 2019, p. 5). "In its color-blind conception, the Plantationocene diminishes the deep history of Black struggle and the ways that attention to slave life can provide guidance for

cultivating worlds that support multispecies well-being" (Davis et al. 2019, p. 5). Wolford (2021) describes the plantation as a social system, imperative, and ideal:

> Plantations in the U.S. South have shaped race relations in the country since emancipation, from the Great Migration to the contemporary prison system. Class, gender, and racial divisions were not invented for the plantation but in many ways they were perfected there—strict hierarchies were laid down, justified, and often internalized. Studying plantation communities around the world provides some insight into the prevalence of patronage politics in rural areas today and lingering desires for strong rulers and 'good bosses.' (Wolford 2021, p. 1628)

The Plantationocene's invocation of a planetary crisis is compelling because it has no outside, no matter how unevenly distributed it is. And, as it is driven by dehumanization, or a negative spiraling process of hominization, the Plantationocene demands "kinships" (Haraway 2015) and co-operations that recognize a "common" and "difficult" encounter with "planetary life" (McKittrick 2011).

McKittrick (2013) draws our attention to the work of George Beckford (e.g., Beckford 1972) as a way of understanding processes of neocolonialism and "persistent poverty" in relations of so-called international development. She explains: "the plantation spatializes early conceptions of urban life within the context of a racial economy: the plantation contained identifiable economic zones; it bolstered economic and social growth along transportation corridors; land use was for both agricultural and industrial growth; patterns of specialized activities—from domestic labor and field labor to blacksmithing, management, and church activities—were performed; racial groups were differentially inserted into the local economy, and so forth" (McKittrick 2013, p. 8). Clyde Woods describes the continued relevance of the plantation in "the violent overthrow of Reconstruction, a "second slavery," and disenfranchisement" (Woods 2007, 31).

Woods locates a dialectic of resistance here too in a theorization of "the blues" and its social practices: "The historical and current resonance of the blues tradition is partly due to its role as the antithesis of the plantation tradition and all of its manifestations" (Woods 2007, 56). In his theorization, the plantation is a land-, capital-, and labor-intensive capitalist institution or militarized agriculture. It includes, in his conceptualization: "agriculture; slavery and sharecropping; enclosures and reserves; industrial estates and mill villages; free-trade and export zones; enterprise and empowerment zones; ghettos and gated communities; suburbanization and gentrification; game preserves and tourist resorts; pine plantations and mines; and migratory and prison labour" (Woods 2007, 56). But beyond this, the plantation includes regulatory regimes which are foisted, maybe with violence, on relations of leadership and community self-organization. Further plantation elements "that have survived the centuries are manifest in the militarized diminution of human rights, labour rights, and democratic forms of governance" (Woods 2007, 56). In considering

the contemporary period, which we have been describing as 'digital civilization,' Woods contends is characterized by "the ever-increasing monopolization and mining of an ever-decreasing supply of viable air, sea, land, subterranean, and communal resources" (Woods 2007, 56). We ask, should not "data" and its problematics discussed above contribute and be contributed to by these understandings of the Plantationocene?

NOVA helps us approach such a synthesis in this context. Describing infrastructural development, Lisa Parks and Nicole Starosielski suggest, the "layering of an emergent system upon an existing one not only exposes the path dependencies of infrastructural formations but also reveals how an established node can be used to generate new markets and economic potentials" (Parks and Starosielski 2015, 2). NOVA is a node (or rather, a collection of nodes) of both historic (plantation) and contemporary (server farm) importance. The digital urbanism of NOVA is located in a racialized economic time and place iterating the processes of the broader Plantationocene: a term which designates how the violently extractive mechanics of the plantation have come to serve as the "ugly blueprint" for contemporary planetary transformations (McKittrick 2013, 11).

3 NOVA and the Plantationocene

Beginning in the 1970s and continuing into the present day, NOVA has established itself as a hub for a variety of critical internet infrastructures. To briefly recount: NOVA was the site of an early ARPANet switching point, and home of both MCI WorldCom and America Online (both since purchased by Verizon). Then-Governor James Gilmore described the region as "the Internet Capital of the World" in 1999. By 2003, boosters claimed over 60 % of global Internet traffic was serviced through what has become known as the Dulles Technology Corridor; that figure is currently touted at over 70 % in Loudoun County alone. Likewise, Arlington is to be the new home of Amazon's HQ2, and the site is already under active development looking forward toward a completion date in 2030.

Today, Loudoun County accounts for roughly 80 percent of the data center inventory in NOVA, the largest data center market in the US. The city of Ashburn, along with neighboring Sterling, hosts the most significant concentration of data centers and related activity, including Equinix, AWS, and Verizon. Much before server farms took over the city, Ashburn was home to the Farmwell and Ashburn plantations, surrounded by similar concerns such as the Belmont plantation.

After the Civil War, Ashburn emerged as a major settlement of free Black people. While Black people in western Loudoun County were primarily employed in lime

and marble quarries, agriculture provided sustenance in the eastern part of the county, where Ashburn is located. Eugene Scheel notes that, by 1880 in the county,

> [a]s the need for farm labor increases and jobs in the cities decrease, blacks move back to the country. They now comprise 31 percent or 7,243 persons of a total population of 23,634. This number will not be surpassed until the mid-1990s. (Scheel n.d.)

Eventually, there developed 27 main Black villages and hamlets, almost always on poor and wooded land.

This period also coincided with the end of Reconstruction and the violent reversal of Black political power and advancement. Nevertheless, the Black population of Loudoun County strove to build facilities for education and business, in the face of emerging Jim Crow laws. Scheel notes that the year 1900 marked the beginning of a slow decline of the Black population of the county relative to its white residents. This happened against the backdrop of periodic lynchings in the county, the *Plessy v Ferguson* decision in 1896, a new state constitution in 1902 that institutes a literacy test and poll tax, and the unveiling of the Confederate Soldier statue at the county courthouse in 1908. This emigration of Black people is also part of the story of a decline in agriculture in NOVA, which had already become unprofitable after the abolition of slavery. By 1980, Scheel notes, the "[d]ecline of farms, especially dairy farms using black labor, leads to the first single-digit percentage of blacks to total population: 8.8 or 5,018 among 57,427 persons." However, the absent Black population still maintain psychic and cultural relationships with Loudoun County. Since the 1990s, events such as a reunion day for "Blacks who have moved away" and a reunion for descendants of enslaved and free people who labored at the Oatlands plantation keep this history alive. The 2015 discovery of a historic cemetery for the enslaved in Ashburn, mostly from the Belmont plantation, is yet another note in the echoes of this history.

As land and people emptied out, Ashburn has come to sit on the world's densest intersection of fiber networks. This was the product of the ARPANET project in the 1960s and the eventual relocation of the internet peering exchange, MAE-East to NOVA (Ceruzzi 2008; Greene 2022). As Ashburn continues its reinvention into Data Center Alley, and as NOVA continues to be the largest data center market in the world, we occasionally observe the juxtaposition of historic plantation farming and today's server farms, inviting us to ponder the latter's lineages. The history of Ashburn itself, as described above, provides one such opportunity.

Examples like Ashburn proliferate, forming the hidden bedrock of even NOVA's most visible infrastructural affordances. For instance, the Dulles Technology Corridor features an array of defense and technology companies which have become especially valuable to national and state policy makers in post-9/11 United States

(Ceruzzi 2008). A key infrastructural component of this agglomeration is the Dulles Airport, providing key international connectivity to the region. The airport was built by razing the predominantly Black settlement of Willard in 1958 (Scheel 2002). Though the village was well past its prime by that time, the 87 area landowners were shocked to receive condemnation letters from the federal government. The landowners deeded 9,800 acres to the government, and moved a historic Black church and its cemetery to the town of Conklin.

West of the Dulles Airport is Arcola, where again we are faced with a juxtaposition of plantation and server farming. The Arcola slave quarters, with its close proximity to Google and Amazon data centers, provides this opportunity. South of Ashburn, and thus away from Data Center Alley proper, the emergence of these data centers indicates the crunch for land in NOVA that can be developed for server farming. As Ashburn and Sterling fill up fast, companies are forced to either lobby for zoning changes to build higher or look outwards to other parts of Loudoun County. The latter is how Google and Amazon have come to rub shoulders with the historic slave quarters.

The Arcola area has already emerged as an outgrowth of Data Center Alley (Figure 3). The hunger for server farming land will continue to bring data centers into direct contact with the plantation history of Loudoun County, especially as it builds over or coexists with specific historical Black settlements, or land once worked by the county's Black population. Facilitating that contact is also zoning practices in the county, especially as the county Board of Supervisors moves to restrict new data centers in Loudoun (Loudoun County Board of Supervisors 2022).

Constraints in power supply (chiefly handled by Dominion Power currently) and access to water for cooling purposes are two major brakes on server farm expansion. Added to that is growing concern from residents about the exterior appearance of server farms, noise from equipment, and the impact of rising land prices on affordable housing. As a result, the county has moved to no longer allow data center construction, by right, in suburban mixed use (887 acres of vacant land in Loudoun County are currently zoned thus) and urban transit center zoned areas, among others. Instead, data centers will now be restricted to suburban industrial/mineral extraction, transition light industrial, and transition industrial/mineral extraction zones. As we briefly saw in the history of Ashburn, the classification of places for such industrial use can often come about through the emigration of people and the decline of settlements.

Arcola provides a similar example. Its heyday as an agricultural establishment ended with the abolition of slavery. In more contemporary times, the County aimed to develop this area as a mixed-use, town center-style development, under the name, Arcola Center. With this vision remaining unrealized for more than a decade, Google stepped in to purchase the land and change its designated use. That process means

that more of the Arcola area has been rezoned to Transition Industrial/Mineral Extraction, featuring some tensions between residents and incoming server farmers (Greene 2018; Lawyers 2014).

The term "Plantationocene" is relatively new and emerges as an experimental alternative to the way that "Anthropocene" and "Capitalocene" tend to omit analytics of race, anti-Blackness, and white supremacy from the study of the planetary effects of anthropogenic processes developed to the point of ecological catastrophe. "It's more than climate change" explains Donna Haraway of this catastrophe, "it's also extraordinary burdens of toxic chemistry, mining, depletion of lakes and rivers under and above ground, ecosystem simplification, vast genocides of people and other critters, etc., in systemically linked patterns that threaten major system collapse after major system collapse after major system collapse." (Haraway 2015, p. 159) She summarizes the conversation that gave rise to including "the plantation" in this analysis nicely in a footnote:

> In a recorded conversation for Ethnos at the University of Aarhus in October, 2014, the participants collectively generated the name Plantationocene for the devastating transformation of diverse kinds of human-tended farms, pastures, and forests into extractive and enclosed plantations, relying on slave labor and other forms of exploited, alienated, and usually spatially transported labor. (Haraway 2015, p. 162)

The point is that our specific current catastrophe is connected to specific systemic, political-ecological processes, within which the racialization, control, and exploitation of labor feature centrally. But the concept also ties these processes directly to "the global circulation of people and plants, the simplification of plantation landscapes, and the role of long-distance capital investments in such processes of homogenization and control" as well as forms of extraction and circulation of substances (Davis et al. 2019, p. 4), "scalability and interchangeability" (Tsing 2015, pp. 38–39) describing "the proficiency through which the plantation was able to expand using an established blueprint—the decimation of local peoples and plants, installation of plantation infrastructure on cleared lands, and importation of foreign people and crops" as well as "the ability to exchange one species for another, evident in the plantation practice of substituting cane stock for enslaved people" (Davis et al. 2019, p. 4). Woods (2007, p. 56) notes that permutations of the plantation now characterize "enclosures and reserves; industrial estates and mill villages; free-trade and export zones; enterprise and empowerment zones; ghettos and gated communities; suburbanization and gentrification; game preserves and tourist resorts; pine plantations and mines; and migratory and prison labor." For Woods, these institutions and modes of production reproduce "the basic features of plantation capitalism: resource monopoly; extreme ethnic, class, racial, and gender

polarization; an export orientation; and the intense regulation of work, family, speech, and thought" (ibid). (Davis et al. 2019, p. 6)

There are myriad ways that this concept applies to server farms, media infrastructures, data colonialism, and communication empires. For example, Zane Griffin Talley Cooper has documented how the rare earth mining practices for permanent magnet (amongst a variety of other digital components) manufacturing rely on "peripheral" geographies of toxic extraction and reformulations of global resource flows that service big data's central, though largely invisible, material apparatuses (Cooper 2021). Similarly, as Parks (2012) indicates, the use of nature metaphors—"the cloud," data "mining,"—works to obscure the significant environmental costs of data infrastructure; such a critique certainly extends to "farming" servers. Although these scholars do not use the language of the Plantationocene—we would point out that analytic has not yet been used in critical data studies, and remains underutilized in digital geography and related work on internet infrastructure—their projects clearly link transnational histories of race, labor, and resource production/extraction to the production of expropriative economies of both land and data.

3.1 State investment and "resource monopolies"

"Who owns the internet?," asks Daniel Greene. "As a complex stack of different technologies, protocols, and politics, there is not one answer," he concedes. But his fascinating work traces the development of the fixed and terrestrial storage, switching, and transmission architectures and infrastructures into an economy of landlordism: private equity funds, financial trusts, and corporations who own and compete for profitability over and through "physical foundations supporting the rest of the internet." It is "not software developers in control, but firms like Equinix and Digital Realty," which he calls "internet landlords" keeping real estate at the foundation of the *digital* dimensions of digital civilization (Greene 2022, 905). Further, Greene explains:

> As a class, internet landlords were birthed by the US property state, which tasked private actors with housing the commercializing internet's network connections in the 1990s. Telecommunications executives and more traditional real estate investors poured into the industry during the dotcom boom. The latter came to dominate after the bubble burst, as private equity cash poured into the market. As Web 2.0 drove up the demand for data storage, the market consolidated, and internet landlords transformed their firm and its cables, servers, and warehouses into financial assets themselves – [REITs.] (Greene 2022, p. 909)

As a set of governmental institutions called the "property state" (Greene 2022; Haila 2000) privatized public infrastructure assets, they formed the institutional foundation for a private internet real estate market.

The early urban development of the Internet in the 1970s revolved around a military funded (though still partnered with research institutions and defense contractors) project called ARPANET, which was composed mainly of clustered sites in three metropolitan areas: Boston, San Francisco, and Los Angeles (Stough 2000; Townsend 2001a, 2001b, 2003). Yet, thanks in large part to federal investment, the Washington, DC metropolitan area soon became a key hub in that network (Gorman et al. 2004; Greene 2022). As Townsend explains: "During the 1970s, growth was rapid and by 1980 ARPANET had a fourth major metropolitan cluster in the Washington, DC area, a region densely populated by military bases, defense contractors, and government information technology contractors" (Townsend 2003). Some of this growth in the 1980s was founded on the Reagan administration's unprecedented deficit investment in defense growth as well as its emphasis on federal outsourcing. Stough has noted how this spending "focused increasingly on the technical and software attributes of arms and arms systems (electronics, design, systems management) rather than on the armaments themselves …" (Stough 2000, 115). It was through these forms of governmental subsidy to local economies that MCI WorldCom and AOL grew to become Fortune 1000 companies in Northern Virginia (Stough 2000). In the 2000s, Virginia was ranked third of the 50 states in the allocation of federal research and development (R&D) funds (AeA (now CompTIA) 2006a; AeA (now CompTIA) 2006b; Davis 2007; PR Newswire 2006; VEDP 2006).

In 1992, MFS Inc established MAE East through its distributed Virginia Ethernet facilities, providing Internet connectivity to several locally based internet services providers, Alternet, PSI, and Sprint-ICM (Gross 2005). MFS/MAE East was then awarded a grant in 1993 by the National Science Foundation, to which control of the development and shape of the Internet had been handed (dubbed, "NSFNet"). This established the facility as one of four original Network Access points (NAP) to the Internet. In 1994, and through collaboration with NASA, MFS Inc built MAE West in Silicon Valley and MAE products continued to grow through the 1990s (Gross 2005). MAE facilities were eventually consolidated into three key MAE Internet Exchange Points: MAE East (Washington, DC metro area; New York, NY), MAE Central (Dallas, TX; Chicago, IL), and MAE West (San Jose, CA). MFS Inc also continued the operation of MAE LA (Los Angeles, CA), MAE Paris, and MAE Frankfurt (Gross 2005).

Illustrating the functional importance of the morphological forms themselves in the development of these communications networks, MFS Inc and its facilities were acquired by WorldCom and later by MCI, subsequently acquired by Verizon (in 2006), who accrue rents through them for global Internet traffic. With MAE East's facilities in Virginia distributed between Herndon, Reston, and Vienna, these

transformations—allowing direct connections to Amsterdam, Frankfurt, London, and Paris—would ensure the ongoing centrality of Northern Virginia and the DC metro area's cyber-landscapes in the global flows of information and global cyber-culture. More than half of the world's Internet traffic flows through the infrastructural landscapes of Northern Virginia.

3.1.1 State and County roles in the production of the "Internet Capital of the World"

In addition to federal investment, individual state governments have also played key roles in regional differentiation and the production of infrastructural landscapes. States compete for the relocation of businesses through various incentives, generally in the form of tax breaks (facilitated by the state's Economic Development Partnership in Virginia). Very often, the state is understood to itself represent a partnership between public offices and corporations. For instance, Delegate John J "Jack" Rust, Jr. (Republican from Fairfax) was known by his colleagues as "the delegate from AOL" until his electoral defeat in 2001 (Timberg 2000). The Northern Virginia Technology Council's Political Action Committee (NVTC TechPAC) supported his unsuccessful campaign to reclaim his seat in 2003. James Gilmore, Virginia's former governor (and later head of the Republican National Committee under George W. Bush), appointed a former executive of Litton/PRC (a public sector IT solutions of the defense IT conglomerate Northrop Grumman) as his "Tech Tzar" to ensure the region's development as a technology center.

The Virginia state assembly, which considered only 4 bills including the word "Internet" in 1995, debated 79 in 2000. This assembly in 1999 also provided AOL with an $18 million tax break on computer equipment and an additional annual tax savings of $4 million, in a measure forwarded by Del. Rust Jr (Bredemeier 1999). AOL's original construction plans for a server-farm facility located in the Manassas Battlefield Business Park (see Figure 4) included $400 million in computer hardware.

Figure 4: Gates and guard of a server farm, Manassas Battlefield Business Park, by author, 2000.

Then-Governor Gilmore provided $500,000 to help Prince William County with "site preparation," a number matched by county grants (VEDP 1999). Later in 1999, however, Intel, MCI WorldCom, Global Crossing, PSINet, Cable & Wireless, Equinix, and UUNet appealed to the Virginia General Assembly to grant them similar tax breaks. These firms were at the time in the planning stages of their own "server farms" and high-tech campuses, and wanted relief from the 4.5 % state sales tax on their proposed spending of over $500 million (Bredemeier 1999). Referring to the AOL facility, VA Secretary of Technology, Don Upson, at the time exclaimed: "This expansion further cements Virginia's role as the Internet Capital of the World" (VEDP 1999). Thus, state taxes and the ability to waive them for favored corporations make state government a key variable in the production of Internet infrastructure. Similar initiatives are available at the local level.

Prince William County, housing the city of Manassas, has spent considerable effort since the late 1990s to attract technology businesses to settle within its borders. In late 2000, after bringing their first server farm to Manassas six months earlier, AOL was persuaded to locate a second in Gainesville, a town roughly 10 miles west of Manassas on 1–66, bordering Fauquier County. State and county leaders enticed AOL with a package of incentives including tax breaks, job training, and fast-tracking the numerous local permits that were required (Rein and Joyce 2000; VEDP 1999). The local incentives provided for the Battlefield Business Park Site in 1999 were very similar: $557,500 in site preparation/land acquisition/infrastructure improvement grants, workforce training by the Virginia Department of Business Assistance, breaks on business personal property tax, and fee reductions on building inspections (VEDP 1999).

In Gainesville, AOL's state and county incentives included $1 million in land acquisition and costs for site preparation (37-acres on Linton Hall Road). The county agreed to waive $62,000 in local planning and permitting fees. Likewise, the county also lowered its tax on computer equipment from $1.50 to $1.25 per $100 (all in all saving AOL nearly $400,000 per year) (PWC Department of Economic Development 2000; Rein and Joyce 2000). And, like the $18 million tax break described earlier, which was allotted by the state's general assembly for AOL's first server farm, they received a similar break for the second, in addition to a $500 per employee reimbursement for training costs (Rein and Joyce 2000). These combined incentives from state and county governments produced a landscape with a markedly higher rent potential than the surrounding regions, both attracting businesses and creating conditions favorable for relationships of monopoly rent.

In some ways a product of these political interventions, the Linton Hall Road server farm (see Figure 5) is located down what used to be a backwoods side-road in Gainesville. The server farm business does not require a great number of employees: when built in the early 2000s, each employ on average about 125 people (mainly

Figure 5: Speculative build data center on Linton Hall Rd., Gainesville, VA. By author, 2001.

engineers and security staff). However, over-accumulation became salient again within the local server farm market not long after construction was finished, as the digital storage capacity of the computer machinery within the structures no longer required the acreage for physical storage that it once did. Because AOL was able to store and process the same amount of information within a smaller space, it subsequently sold the Linton Road facility to an internet landlord who rents portions of its capacity to various clients. It can be assumed, however, that the remaining benefits of server farms to counties are 1) a boost to the commercial tax base and more importantly, 2) ensuring the infrastructural inertia necessary to bring more technology and telecommunications business to the area. Prince William County illustrates the regionally competitive nature of this economy, which states and counties have managed through competitively providing tax breaks, permit fast-tracks and other location-conditional incentives.

3.2 A reordering of space and scale: large-scale intensive industrial "server farming"

NOVA is home to a variety of technology firms, from telecommunications to biotechnology. Many of these diverse firms occupy the same facilities such as

"Innovation," the name of a high-tech business campus in Prince William County. The county constructs or contributes to the construction of such facilities because it was in competition with other regions around the country (and the world) for economic investment. Yet regional specializations developed as well. While the 1990s saw Silicon Valley structured for manufacturing and Silicon Alley for creative/cultural production, Northern Virginia—as the previous section showed—was purposely developed into a global center of electronic infrastructure. The most critical aspect of such a region—after its public investments—is its infrastructural inertia, which revolves around three elements in Northern Virginia: investment banks, fiber optics deployment, and server farms. Once one corporation put these in place (AOL, initially, as it deployed miles of initial fiber optic cable in the mid-nineties), it became easier for the region to attract more.

The DMV region has become the sixth biggest economy in the US: it is worth about $471 billion, and third in net employment in technology in the US (CompTIA 2019). In 2006, Virginia alone was home to 10,900 high-tech companies' operations and the headquarters of 30 Fortune 1000 firms (VEDP 2006). The Dulles area, also referred to as "Data Center Alley," continues to lead the data center market in the United States, "home to over 12 million square feet of commissioned data center space, representing over 800 megawatts of commissioned power" (VEDP 2019). In the late 1990s and early 2000s, NOVA attracted investment firms, banks and venture capital to what have become financial hubs such as Tyson's Corner and Vienna. AOL itself developed a venture division, "AOL Investments" (now AOL Ventures), which invested in various media, affordable computing, palm technology, and international Internet companies.

However, historically, fiber optic cable was a critical condition of possibility for the region. In 1999, Bell Atlantic spent the majority of its $600 million Virginia construction budget on fiber optic deployment. In 2000, there were roughly 620,000 miles of fiber optic cable in Virginia (Schafer 2000). The provision of fiber optic infrastructure fundamentally shaped the division of labor in Northern Virginia. Certain towns, for example Leesburg, were unable to attract the high-tech businesses and infrastructure because they only had old copper wiring which could not handle the needs of such investments. Because Leesburg did not have the initial fiber optic deployment that the center of the region had, firms do not want to waste the time and money deploying more cable when they can utilize existing fiber optics in Fairfax and Prince William counties (Arnett Muldrow & Associates 2003). To attach itself to the high-tech economy in that region, Leesburg planned to deploy its own fiber optics in 2001 (Schafer 2000). Fairfax County itself hosted a trio of carriers (MCI WorldCom's UUNet division in Fairfax, PSINet Inc. in Reston, and Cable & Wireless in Vienna) whose fiber optic networks, switches and routers carried a huge bulk of global Internet traffic. PSINet, which aimed to be an Internet

"super-carrier," planned to invest over a billion dollars in the early 2000s to expand its fiber optic network.

3.3 Placelessness, enclosure, and dispossession

Internet landscapes, the basis of the gig economy, big data policing, and user data dispossession, are also securely *enclosed*—either by virtue of being buried or by complex security systems and sturdy barricades. Not only are such infrastructural landscapes wholly privatized, but they are fenced and guarded as well. In the early 2000s, no photography was allowed (one of the authors was occasionally run off). The boxy morphological forms of these landscapes are private property, and more importantly, so are the data within them. Perhaps the constructed invisibility (at least in the early period) of the data plantations made them logistically effective in dissociating the geography of social interaction they allow. It also provided, perhaps more importantly for a preliminary security measure. But invisibility is not enough. Particularly as the protection of internet infrastructure increasingly became a matter of national security during "The War on Terror," the safety of information and by extension the enclosure and fortification of the machinery that store and process it was a central concern. Savvis, a video on-demand company (since sold to Lumen Technologies) with facilities in Virginia, advertised in 2005:

> The difference is obvious when you first arrive at a Savvis facility. We start with reinforced perimeter fencing with a fiber optic detection system and gates that can withstand a truck traveling at 50 miles per hour. This infrastructure is supported by the continuous monitoring of more than 100 cameras that keep watch over every area within the facility. In fact, security measures are extended right down to your server and rack. With our intelligent access system, we can tell you who opened a rack, when, and for how long. Of course, we also have the required redundant power, cooling, and fire suppression systems expected of a world-class facility (video "Facilities Tour" on Savvis's now-defunct website: http://www.savvis.net/corp, accessed 8/6/05).

It is the proprietary enclosure of the morphological forms themselves and the security they provide to data plantations that make them logistically effective strategies for the acquisition and protection of rents and the accumulation of capital.

But these features, as we have seen, are not just hiding and enclosing the digital processes of a larger system of plantation capitalism. They are also part of the erasure of traces of Black life on the land. McKittrick explains of the plantation and Black sense of place, "the annihilation of black geographies in the Americas is deeply connected to an economy of race, and thus capitalism, wherein the process of uneven development calcifies the seemingly natural links between blackness,

underdevelopment, poverty, and place within differing global contexts" (McKittrick 2011, p. 951). In Prince William County the Ladies' Memorial Associations began rewriting the history of the Civil War and the violent overthrow of Reconstruction continued a struggle over Black geographies, which still shapes the present. But families, amateurs, scholars, librarians, and activists have been working for decades, to remark the traces of Black life and struggles for place in NOVA. One such effort is the Arcola Quarters.

The *Loudoun Times-Mirror* noted in 2012 that the enslaved people "living at the Arcola slave quarters were probably active in maintaining the Little River Turnpike, which is the precursor of U.S. 50," which facilitated the movement of goods and people across the area (Hager 2012). The Friends of the Slave Quarters was incorporated in 2001 as part of a preservation effort, receiving $500,000 and 10 additional acres from a Buchanan Partners donation in 2006, following an assessment of the site's "market potential" (Randall Travel Marketing 2006). In 2006, Buchanan Partners committed to donate an additional 10 acres to the four acre slave quarters site, as well as $500,000 to help improve the site and its structure. If, as McKittrick theorizes, "the plantation [is] a very meaningful geographic prototype that not only housed and normalized (vis-à-vis enforced placelessness) racial violence in the Americas but also naturalized a plantation logic that anticipated (but did not twin) the empirical decay and death of a very complex black sense of place," activists for marking Black history on the NOVA landscape have made some headway since the early 1990s (McKittrick 2011, p. 951). Google felt obliged to commit funds to the Quarters last year as it occupied land across the street. There is no space to further develop this struggle over race and place in NOVA or the DMV here. But it is clear that the region and its terrain is still—as it has been—a site of mapping practices as part of the racialized geographies of contemporary global digital civilization.

4 Conclusion: abolition and the digital Plantationocene

Besides partially mapping the physical, processual, and conceptutal overlap of digital infrastructure with the plantation, hypothesizing data plantations also helps us reimagine the urban problematic and with it the usefulness of the 'right to the city' in this era. Digital capitalism's well-documented data accumulation by dispossession, unpaid digital labor, debt and digital rentier economies, digital scientific management and labor surveillance, and algorithmic policing are rooted in parcels of land and transformations of the landscape. They become *simply*

problematics of privacy, intellectual property, search and seizure rights, and so on as long as other urban relations of property and dehumanization are taken for granted. Perhaps, in response to the data plantation, abolitionism provides another perspective on digital urban rights: a global end to slavery and its afterlives and a corollary transformation of property rights. Perhaps we imagine struggles for the digital urbanism of the Plantationocene inspired by a speech by Bayley Wyat to a gathering of his fellow Freedmen on December 15, 1866 in Yorktown, VA, recorded (in dialect) the Superintendent of Friends' Freedmen's Schools: "I may state to all our friends, and to all our enemies, that we has a right to the land where we are located. For why? I tell you. Our wives, our children, our husbands, has been sold over and over again to purchase the lands we now locates upon; for that reason we have a divine right to the land." Wyat illustrates in stunning concreteness and poetics simultaneously a rendering of post-Bellum *urban* relations and the social morphologies that form the plantation. He invokes not simply the relationship between his own personal labor and his proximate plantation economy, but further, the much broader circulation of capital and its parasitic dependence on the fungibility of Black human bodies.

Internet infrastructure does not inherently lend itself to a kind of "mortal urgency"[1] on the surface: it may even seem banal or trivial when compared to other topics, and we will not try to compare. But perhaps we can still take the Plantationocene seriously, and within that context we can also reimagine the attention and war economies on which so much of NOVA's wealth is built, including their schools, parks, retirements, healthcare, and so on. There is no such thing as subsistence server farming and the large-scale farming of data has drawn nearly every social practice into its exchanges. The infrastructural landscape of Northern Virginia is at once an idealized symbolization of modern capitalist political economy and an inadvertent memoir of the logistical demands of that productive force built onto the physical terrain. While the (digital) farmlands of Dulles, Reston, Manassas, and Gainesville, VA are not generally thought of in relation to the assumed placelessness of the internet, they are critical to its growth and character as they underpin its function. The clandestine nature and physical structure of Northern Virginia's server farms, organized by powerful social actors, undermines rooting digital urbanism within a sense of place and historical development that includes the racial capitalist history of the plantation. The purposeful invisibility and enclosure of these infrastructural landscapes work to conceal the spatial class strategies that formed them.

This in mind, the landscapes of the Internet need to be understood on several related levels. First, they are the context and outcome of political and class struggle

1 A phrase McKittrick uses so beautifully to describe the power of Ruth Gilmore's writing (McKittrick 2011, 959).

(Mitchell 1996; Zukin 1993). In NOVA, as in other places, they are managed by capital-allied governmental bodies, built by labor, and inhabited by social actors whose contending interests for accumulation, development, and social reproduction shape and are shaped by the landscapes themselves. Following from this, the militarized shape of the morphological aspects of this infrastructural terrain—and its server farms in particular—also prevents public access to these spaces and preserves its relations of monopoly rent (Graham 2002; Graham and Marvin 2001). Any informational right to the city (Shaw and Graham 2017) must address the issue of landand property as part of the circulation of capital. Finally, while landscape is considered a "medium of exchange" (Mitchell 1994), this aspect of the infrastructural landscape is perhaps amplified. Not only do the fiber optic cables, investment banks, technology production plants, and server farms in NOVA and the DMV area facilitate the accelerated exchange of information, commodities, and capital across space and between places. They also, in their networking and expansion incorporate new spaces into their material system of technological dependency, individuated social interaction, and commodity exchange. But this exchange is built, literally, on the long history of insurgent anti-abolitionism, on the afterlives of slavery in a color-blind context, and in the naturalization of plantation capitalism by the erasure of Black life and anti-blackness in digital urban space. It is only in this context that NOVA can build regional "data center operations" curricula in one instance (Gustin 2023) and, in the next, become embroiled in the fight for banning "critical race theory" and other "equity-minded" approaches in Loudoun public schools.

The period of development this essay discusses continues to have profound effects on the economy and terrain of Northern Virginia. Amazon's recent decision to locate half of its new headquarters (HQ2) in Arlington, VA, was motivated both by the terrain produced via the processes described here and a more recent history of similar tax credits and job training incentives offered by state and local governments. The region's infrastructural accumulation and its corresponding "enrichment" of the local labor force have been credited for that decision—as a recent *Forbes* article (Levick 2019) describes, the area's "transformation started long before efforts to attract Amazon. The ground had to be tilled first" (Levick 2019). Though Levick's discussion of the "ground" is largely metaphorical, we suggest instead that consideration of the terrain is a critical element of reproduction of plantation capitalism, and the planetary catastrophe of the Plantationocene.

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References

Adey, Peter, Laure Brayer, Damien Masson, Patrick Murphy, Paul Simpson & Nicolas Tixier. 2013. 'Pour votre tranquillité': Ambiance, atmosphere, and surveillance. *Geoforum* 49. 299–309.

AeA (now CompTIA). 2006a. Cyberstates 2006: A complete state-by-state overview of the high-technology Industry. *AeA Report*.

AeA (now CompTIA). 2006b. Virginia leads the nation in tech job creation Virginia poised to surpass Colorado for first place by concentration of tech workers. *AeA Press Release* April 19.

Aires, Susana. 2020. Laboured identity: An analysis of user branding practices on Instagram. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* 18(1). 494–507.

Andrejevic, Mark. 2007. *iSpy: Surveillance and power in the interactive era*. Lawrence, KS: Univ Pr of Kansas.

Andrejevic, Mark. 2019. Automating surveillance. *Surveillance & Society* 17(1–2). 7–13.

Arnett Muldrow & Associates. 2003. *A business development strategy for Leesburg, VA*. Leesburg, VA: Leesburg Economic Development Commission.

Attoh, Kafui, Katie Wells & Declan Cullen. 2019. "We're building their data": Labor, alienation, and idiocy in the smart city. *Environment and Planning. D, Society & Space* 37(6). 1007–1024.

Azhar, Shahram. 2020. The conditions of the global digital working class: The continuing relevance of Friedrich Engels to theorising platform labour. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* 19(1). 154–170.

Beckford, George L. 1972. *Persistent poverty: Underdevelopment in plantation economics of the third world*. New York: Oxford University Press.

Bredemeier, Kenneth. 1999. Tech firms ask Va. for tax break; AOL received similar cut earlier this year: [FINAL Edition]. *The Washington Post*. December 21 (p. E. 1:5).

Briziarelli, Marco & Emiliana Armano (eds.). 2017. *The spectacle 2.0: Reading debord in the context of digital capitalism*. London: University of Westminster Press.

Browne, Simone. 2015. *Dark matters: On the surveillance of blackness*. Durham: Duke University Press Books.

Carah, Nicholas & Daniel Angus. 2018. Algorithmic brand culture: Participatory labour, machine learning and branding on social media. *Media, Culture & Society* 40(2). 178–194.

Ceruzzi, Paul E. 2008. *Internet alley: High technology in Tysons Corner, 1945–2005*. Cambridge, Mass: MIT Press.

Chakravartty, Paula & Denise Ferreira da Silva. 2012. Accumulation, dispossession, and debt: The racial logic of global capitalism—an introduction. *American Quarterly* 64(3). 361–385.

CompTIA. 2019. Cyberstates 2019: The definitive guide to the U.S. tech industry and tech workforce. *Computing Technology Industry Association Report*. https://www.documentcloud.org/documents/5978467-CompTIA-Cyberstates-2019.

Cooper, Zane Griffin Talley. 2021. Of dog kennels, magnets, and hard drives: Dealing with Big Data peripheries. *Big Data & Society* 8(2). 1–15.
Couldry, Nick & Ulises A. Mejias. 2019. *The costs of connection: How data is colonizing human life and appropriating it for capitalism*, 1st edn. Stanford, California: Stanford University Press.
Davis, Sam. 2007. AeA announces job growth despite decline In U.S. competitiveness. *Electronic Design* (May 7).
Davis, Janae, Alex A. Moulton, Levi Van Sant & Brian Williams. 2019. Anthropocene, Capitalocene, … Plantationocene?: A manifesto for ecological justice in an Age of global crises. *Geography Compass* 13(5). 1–15.
Dyer-Witheford, Nick. 2015. *Cyber-proletariat: Global labour in the digital vortex*. Toronto, Ontario, London: Pluto Press.
DHR. 2008. 053-0984 Arcola slave quarters. *Virginia historic registers*. Virginia: The Virginia Department of Historic Resources. https://www.dhr.virginia.gov/historic-registers/053-0984/.
Di Feliciantonio, Cesare. 2016. Subjectification in times of indebtedness and neoliberal/austerity urbanism: Subjectification in times of indebtedness. *Antipode* 48(5). 1206–1227.
Ekman, Mattias. 2016. The relevance of Marx's theory of primitive accumulation for media and communication research. In Vincent Mosco & Christian Fuchs (eds.), *Marx in the age of digital capitalism*, 105–132. Leiden: Brill.
Ferguson, Andrew Guthrie. 2017. *The rise of big data policing: Surveillance, race, and the future of law enforcement*. New York: NYU Press.
Foth, Marcus, Martin Brynskov & Timo Ojala. 2015. *Citizen's right to the digital city: Urban interfaces, activism, and placemaking*. Singapore: Springer.
Freed, Benjamin. 2016. 70 percent of the world's web traffic flows through Loudoun county – Washingtonian. *Washingtonian*.
Fuchs, Christian. 2020. *Communication and capitalism: A critical theory*. London: University of Westminster Press.
Garreau, Joel. 1992. *Edge city: Life on the new frontier*, Reprint edn. New York, NY: Anchor.
Gilmore, Ruth Wilson. 2007. *Golden gulag: Prisons, surplus, crisis, and opposition in globalizing California*. Berkeley: University of California Press.
Gilmore, Ruth Wilson, Brenna Bhandar & Alberto Toscano. 2022. *Abolition geography: Essays towards liberation*. London, New York: Verso.
Gorman, Sean P., Laurie Schintler, Raj Kulkarni & Roger Stough. 2004. The revenge of distance: Vulnerability analysis of critical information infrastructure. *Journal of Contingencies and Crisis Management* 12(2). 48–63.
Graham, Henry S. & Edwin Hergesheimer. 1861. *Map of Virginia: Showing the distribution of its slave population from the census of 1860*. Washington, D.C.: Census Office, Department of Interior.
Graham, Stephen. 2002. On technology, infrastructure and the contemporary urban condition: A response to coutard. *International Journal of Urban and Regional Research* 26(1). 175–182.
Graham, Stephen & Simon Marvin. 2001. *Splintering urbanism*. New York: Routledge.
Greene, Daniel. 2022. Landlords of the internet: Big data and big real estate. *Social Studies of Science* 52(6). 904–927.
Greene, Renss. 2018. Supervisors approve 45 more acres of Google data centers. Available at: https://www.loudounnow.com/archives/supervisors-approve-45-more-acres-of-google-data-centers/article_228c43ae-2e0d-5ed6-8c7c-a801519ddd7d.html.
Gross, S. 2005. *"MAE services" white paper, Verizon*. MAE.net.

Gustin, Alexis. 2023. NOVA students get path to IT, data center careers. *Loudoun Now*. https://www.loudounnow.com/news/education/nova-students-get-path-to-it-data-center-careers/article_5fe861d2-ac83-11ed-99b1-a788984685a5.html.

Hager, Hannah. 2012. Arcola Slave Quarters a reminder of Loudoun's dark history. Available at: https://www.loudountimes.com/real_estate/arcola-slave-quarters-a-reminder-of-loudouns-dark-history/article_5223fc95-a411-5bcc-b4e4-2502f5908898.html.

Haila, Anne. 2000. Real estate in global cities: Singapore and Hong Kong as property states. *Urban Studies* 37(12). 2241–2256.

Haraway, Donna. 2015. Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin. *Environmental Humanities* 6(1). 159–165.

Haraway, Donna, Noboru Ishikawa, Scott F. Gilbert, Kenneth Olwig, Anna L. Tsing & Nils Bubandt. 2016. Anthropologists are talking – about the anthropocene. *Ethnos* 81(3). 535–564.

Harvey, David. 2008. The right to the city. *New Left Review* 53. 23–40.

Harvey, David. 2013. *Rebel cities: From the right to the city to the urban revolution*, 1st edn. New York: Verso.

Jackson, Zakiyyah Iman. 2023. Saidiya Hartman (interview). *BOMB Magazine* (Winter).

Klein, Bill. 2019. Data center alley: Why 70% of internet traffic flows through Ashburn Virginia | DigitalTech. Available at: https://digitaltech.com/data-center-alley-why-70-of-internet-traffic-flows-through-ashburn-virginia/.

Lawyers, The Land. 2014. Stonewall Secure Business Park. *Walsh Colucci Lubeley Walsh*. Available at: https://thelandlawyers.com/stonewall-secure-business-park/.

Lefebvre, Henri. 1992. *The production of space*. (Donald Nicholson-Smith, Tran.), 1st edn. Oxford, OX, UK; Cambridge, Mass., USA: Wiley-Blackwell.

Lefebvre, Henri. 2003. *The urban revolution*, 1st edn. Minneapolis: Univ of Minnesota Press.

Levick, Richard. 2019. Amazon Goes to Virginia: How long-term thinking Won the HQ2 prize. *Forbes*.

Loudoun County Board of Supervisors. 2022. Board of supervisors business meeting action item #5.

LoudounNow. 2022. Google gives $50K to the friends of the slave quarters. *Loudoun Now* 7(14). 14.

Massey, Doreen B. 1994. *Space, place, and gender*. Minneapolis: University of Minnesota Press.

McCormack, Derek P. 2017. Elemental infrastructures for atmospheric media: On stratospheric variations, value and the commons. *Environment and Planning D: Society and Space* 35(3). 418–437.

McKittrick, Katherine. 2011. On plantations, prisons, and a black sense of place. *Social & Cultural Geography* 12(8). 947–963.

McKittrick, Katherine. 2013. Plantation futures. *Small Axe* 17(3). 1–15.

McKittrick, Katherine & Clyde Adrian Woods (eds.). 2007. *Black geographies and the politics of place*. Toronto, Ont.: Cambridge, Mass: Between the Lines; South End Press.

Mekouar, Dora. 2020. Here's where the internet actually lives. Available at: https://www.voanews.com/a/usa_all-about-america_heres-where-internet-actually-lives/6184090.html.

Mitchell, William John Thomas. 1994. *Landscape and power*. Chicago: University of Chicago Press.

Mitchell, Don. 1996. *Lie of the land: Migrant workers and the California landscape*. Minneapolis: University of Minnesota Press.

Mitchell, Don. 2000. *Cultural geography: A critical introduction*, 1st edn. Malden, MA: Blackwell Publishing Limited.

Parks, Lisa. 2012. Technostruggles and the satellite dish: A populist approach to infrastructure. In Göran Bolin (ed.), *Cultural technologies: The shaping of culture in media and society*, 64–84. New York: Routledge.

Parks, Lisa & Nicole Starosielski (eds.). 2015. *Signal traffic: Critical studies of media infrastructures*, 1st edn. Urbana: University of Illinois Press.

Pickren, Graham. 2018. 'The global assemblage of digital flow': Critical data studies and the infrastructures of computing. *Progress in Human Geography* 42(2). 225–243.
PR Newswire. 2006. AeA report finds tech industry back on upswing; California tech employment losses slow significantly. *PR Newswire* (April 19).
PWC Department of Economic Development. 2000. America online to invest $555 million in its second technology center to be located in Prince William County. *Prince William County Department of Economic Development Press Release*. Oct 23.
Randall Travel Marketing. 2006. *Slave cabin restoration & reuse – the Arcola Center*. Loudoun County, VA: Friends of the Slave Quarters.
Ranganathan, Malini. 2020. Empire's infrastructures: Racial finance capitalism and liberal necropolitics. *Urban Geography* 41(4). 492–496.
Rein, Lisa, & Joyce, Amy (2000). State, local incentives saving AOL a bundle; firm starts work on 2nd data center: [FINAL Edition]. The Washington Post. October 25 (p. PWE.1).
Rosenthal, Caitlin. 2018. *Accounting for slavery: Masters and management*. Cambridge, Massachusetts: Harvard University Press.
Rushkoff, Douglas. 2017. *Throwing rocks at the Google bus: How growth became the enemy of prosperity*, Reprint edn. New York, NY: Portfolio.
Sadowski, Jathan. 2020. The internet of landlords: Digital platforms and new mechanisms of rentier capitalism. *Antipode* 52(2). 562–580.
Schafer, Sarah. 2000. Fishing without a high-tech lure; Leesburg tackles fiber optic needs to attract firms: FINAL Edition. *The Washington Post*. (p. LE.5).
Scheel, Eugene. 2002. Dulles airport has its roots in rural black community of Willard: [FINAL Edition]. *The Washington Post*. November 17 (p. T03).
Scheel, Eugene. n.d. Timeline of important African American events in Loudoun county, Virginia. Available at: https://www.loudounhistory.org/history/african-american-chronology/.
Schiller, Herbert I. 1991. *Culture, Inc: The corporate takeover of public expression*. Oxford: Oxford University Press on Demand.
Shaw, Arquelle. 2020. Creating the digital infrastructure capital of the world. Available at: https://blog.equinix.com/blog/2020/11/10/creating-the-digital-infrastructure-capital-of-the-world/.
Shaw, Joe & Mark Graham. 2017. An informational right to the city? Code, content, control, and the urbanization of Information. *Antipode* 49(4). 907–927.
Stough, Roger R. 2000. The greater Washington region: A global gateway region. In Åke E. Andersson & David Emanuel Andersson (eds.), *Gateways to the global economy*, 105–123. Cheltenham England, Northampton, MA: Edward Elgar Publishing.
Sunday Morning. 2017. *The heart of "The Cloud" is in Virginia*. CBS NEWS.
Taylor, Kirstine. 2021. Racial capitalism and the production of racial innocence. *Theory & Event* 24(3). 702–729.
Thatcher, Jim, David O'Sullivan & Dillon Mahmoudi. 2016. Data colonialism through accumulation by dispossession: New metaphors for daily data. *Environment and Planning D: Society and Space* 34(6). 990–1006.
Timberg, Craig. 2000. Gilmore Signs bill on software; state is First to Enact industry-backed Law: [FINAL Edition]. *The Washington Post*. March 15. B.1.
Townsend, Anthony M. 2001a. Network cities and the global structure of the internet. *American Behavioral Scientist* 44(10). 1697–1716.

Townsend, Anthony M. 2001b. The internet and the rise of the new network cities, 1969–1999. *Environment and Planning B: Planning and Design* 28(1). 39–58.
Townsend, Anthony M. 2003. *Wired/unwired: The urban geography of digital networks*. MIT, Department of Urban Studies and Regional Planning.
Tsing, Anna. 2015. *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton: Princeton University Press.
VEDP. 1999. *Governor Gilmore announces America online's selection of Prince William County as site for $520 mill*. Virginia Economic Development Partnership.
VEDP. 2006. Advantage: Economy, strong and diversified for greatest stability. *Virginia Economic Development Partnership*. http://www.yesvirginia.org/Virginia_Advantage/Economy.aspx.
Wells, Katie J., Kafui Ablode Attoh & Declan Cullen. 2023. *Low expectations: The rise of uber and the fall of the city*. Princeton: Princeton University Press.
Williams, Raymond. 1978. *Marxism and literature*. Oxford England: Oxford University Press.
Wolford, Wendy. 2021. The plantationocene: A lusotropical contribution to the theory. *Annals of the American Association of Geographers* 111(6). 1622–1639.
Woods, Clyde Adrian. 2007. "Sittin on top of the world": The challenges of blues and hip hop geography. In Katherine McKittrick & Clyde Adrian Woods (eds.), *Black geographies and the politics of place*, 46–81. Toronto, Ont., Cambridge, Mass: Between the Lines: South End Press.
Zuboff, Shoshana. 2019. *The Age of surveillance capitalism: The fight for a human future at the new frontier of power*, 1st edn. New York: PublicAffairs.
Zukin, Sharon. 1993. *Landscapes of power: From Detroit to Disney World*. Berkeley: University of California Press.

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