

REGULAR PAPER

Speculating on vacancy

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Abstract

Property speculation has long served a role in the settler colonial appropriation of land and the racialised uneven development of contemporary cities. This future-oriented approach to property acquisition and management is underpinned by notions of vacancy that erase past and present forms of possession and associate racialised spaces with lack and risk. Efforts to define, represent, and manage the speculative value of “vacant” properties through predictive mapping work to colonise the future in ways that erase the present and past. In this paper, I reflect on the role of speculative cartographies of property in both reifying and undermining normative urban property regimes. Specifically, I examine the city of Philadelphia's use of cartographic tools to identify “likely” property vacancy and how they relate to ongoing racialised dispossession. I then turn to consider the potential of speculative (counter) cartographies of property to contribute to new political realities, not just prevailing geographies. To do so, I engage with the work of artists and activists who are using mapmaking grounded in Afrofuturism to reclaim and reimagine the space-times of properties deemed by city officials and developers to be “empty” or “wasted.” I suggest that while speculative cartographies of property facilitate the consolidation of liberal property regimes, they also allow for their disruption by revealing their situatedness and contingency – and by facilitating alternative visions of urban futures.

KEYWORDS

critical cartography, Philadelphia, property, race, speculation, urban planning

1 | INTRODUCTION

Speculation has served a critical role in the maintenance and extension of liberal property regimes, perpetuating colonial imaginaries of an expansive frontier and representing a cutting edge of value extraction (Massey, 2013). This future-oriented approach to land acquisition and management is underpinned by conceptualisations of vacancy as empty space, or *terra nullius*, that erase past and present forms of possession that do not align with proprietary norms. In other words, “real” estate speculation involves abstracting the materiality of property and projecting prospective economic value onto “empty” landscapes, therein vacating present–past space-times in the service of possible capital-rich futures. Within the “structural continuities” of settler colonialism and racial capitalism (Launius & Boyce, 2021, p. 161), proprietary speculation conceptually, and often

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practically, colonises *future* land use through the projective “devaluation of Black (and other nonwhite) bodies” (Pulido, 2016, p. 1) and their “vacant” spaces.

In mapping *terra incognita* as *terra nullius*, geographers have long played a role in the production of speculative cartographies of property, where vacancy is projected onto uncertain, illegible, or “risky” spaces, therein securing future frontiers for (neo)liberal real estate. The development of modern map-making, as John Pickles writes, corresponded with “the emergence of new forms of property regime necessitated by the extension of capitalism” (2004, p. 99), as well as government formation whereby the legal legibility of land use has been a key concern of statecraft (Scott, 1998). Real estate regimes, grounded in the “rationality of racial capitalist settler coloniality” (Melamed, 2015, p. 83), have relied on “the will of erasure” (Jacobs, 1996, p. 105) and conceptualisations of vacancy that re-present space as empty – an emptiness that invokes an imperative for capture and enclosure, and allows for socio-spatial differentiation based on de-/re-valuation (Melamed, 2015). Through the abstracting force of “spatial technologies of power” (Jacobs, 1996, p. 105), such as cadastral surveys and maps, space is “desocialized and depoliticized” and “conceptually remapped as vacant land” (Blomley, 2003a, p. 127, 129) by erasing and disciplining lives and lived relations external to a “sharply defined field of vision” (Scott, 1998, p. 47). This field of vision is limited by speculation on what “might be useful for capital accumulation” (Moore, 2015, p. 202) – what might become property. Past and present possessors and forms of possession that do not promise future accumulation are cartographically vacated – conceptually and physically devalued and displaced – to create space for the future of settled (white) property and proprietary subjects. As urban planning scholar Libby Porter writes, “[t]hrough maps, ‘emptiness’ is converted into a landscape populated by the kinds of things European spatial cultures can see and use” (2010, p. 70). But it is through the *speculative* orientation of proprietary maps that this emptiness is first extended. As US cities increasingly use predictive tools to map “vacant” property in an effort to identify potential risk and secure the future of urban development, in this paper, I ask, prompted by digital geographer Agnieszka Leszczynski, “what kind of a city [this vacancy mapping] anticipates” (2016, p. 1693).

To begin to answer this question, I turn to the city of Philadelphia, founded in 1682 by “grand speculator” William Penn (Glaeser, 2013) on Lenni-Lenape territory. Developing as a US manufacturing centre, by the early 20th century the city was dubbed “the Workshop of the World” (Sicotte, 2016). However, the subsequent decline in manufacturing, increasing suburbanisation, and “white flight” contributed to considerable property abandonment. Between 1955 and 1980, the city lost 75% of its manufacturing jobs, and by 2004 the city’s population had declined by over 600,000 residents, leaving an estimated 60,000 properties “vacant” (Fairbanks, 2009, pp. 4–5). The 2008 subprime market crisis and related foreclosures, which disproportionately impacted the city’s African American and Latinx residents (Goldstein & Urevick-Ackelsberg, 2008), compounded the issue of property abandonment. However, in recent years, bolstered by the fastest growing “millennial” population in the ten largest US cities (Yang, 2015), there has been a boom in new construction in some neighbourhoods – with 2019 setting a record for the issuance of new construction permits since becoming digitised (Briggs, 2019). In 2014, prompted by grassroots organising concerned about displacement related to fast-paced development of “vacant” land, Philadelphia became the largest US city to create a municipal land bank to centralise the sale and management of this property. Within this context of intensified real estate market pressures, active community efforts to “take back” and “take over” vacant property (Noterman, 2020), and increasing Big-data-informed government administration of vacancy in a city with an estimated 37,000 publicly and privately owned “vacant” lots and buildings (see Figure 1), I consider emergent struggles over mapping (out), and speculating on, the future of these spaces.

To do so, I draw on over a year of fieldwork (2016–2018) in Philadelphia, involving 54 formal interviews and numerous informal conversations with city employees, housing activists, counter-cartographers, artists, and private developers, as well as participant observation at 112 events, including city agency public meetings, property auctions, developer-led design charettes, and events on gentrification, affordable housing, and community visioning and mapping. First, I frame this research by considering the role of vacancy and speculation – and speculative vacancy – in proprietary map-making, therein contributing to recent critical geographic and legal scholarship that examines the ways that socio-spatial differentiation and uneven relations of precarity are continually reproduced through liberal property regimes in settler colonial cities (Bhandar, 2018; Blomley, 2020; Bonds, 2019; Launius & Boyce, 2021; Safransky, 2020). Specifically, I outline the development of speculative cartographies of liberal property, arguing that the continual projection of vacancy on “unknown,” “risky” spaces has allowed for the reification and expansion of what legal scholar Brenna Bhandar (2018) calls “racial regimes of ownership,” grounded in the devaluation and erasure of “improper” possession and possessors – or those deemed not to possess “the capacity to appropriate” (p. 6). I then turn to consider Philadelphia’s predictive mapping of “likely vacant” properties. In the context of an increasing reliance on Big-data and predictive analytics in urban planning and governance (Kitchin, 2014, 2017), I suggest that the resulting “neutral” speculative cartographies of property not only naturalise racialised notions of proprietary risk and valuation but also extend them into future city spaces. Finally, I contend that cartographic speculation serves as an important site of contestation over urban futures, especially as urban scholars, planning practitioners, and racial justice activists increasingly work to cultivate alternative or “otherwise” spatial imaginaries (Bates et al., 2018; Brand & Miller, 2020). I reflect on the potential of speculative



FIGURE 1 “Likely vacant” properties in the city of Philadelphia, November 2020. Data Sources: City of Philadelphia Vacant Property Indicators Model for Buildings and Lots, Philadelphia Office of Innovation and Technology, November 2020

(counter) cartographies of property to contribute to new political realities, not just prevailing geographies. To do so, I highlight the work of activists drawing on Afrofuturist epistemologies to make maps that revalue urban spaces emptied in redevelopment plans. Through “counter-cartography,” “repossessing” cartographic space (Jacobs, 1996, p. 151), they arguably develop forms of radical cartographic speculation that map out alternative space-times – where geographical imagining becomes liberatory rather than a process of capitalist capture. Vacant spaces are re-mapped, shown to be full of living histories, present resistances, and multiplying resilient futures.

2 | SPECULATIVE CARTOGRAPHIES OF PROPERTY

Knowledge is power, and we want to know what comes next, we want it all mapped out. (Le Guin, 2010 [1982], p. 16)

The practice of mapping in a colonial-capitalist register has long involved “a drive to make unknowns known and render them available for detection and domination” (Agostinho et al., 2019, p. 426). The monsters that populated unknown space on historical

maps simultaneously elicited a sense of risk and “a desire to colonise it” (Agostinho et al., 2019, p. 426) – both materially and epistemologically. Visualising the monstrous geographical imaginaries of the unknown and unfamiliar allowed for – and continues to facilitate – the emergence of a vacant frontier, where the drive for discovery results in violent erasure through colonial scientific observation and speculative mapping rather than recognition of actually existing geographies (Belyea, 1997). In other words, making “unknowns known” through mapping practices produces its own “blank spaces,” resulting in “dispossession through spatializing” (Gregory, 1994, p. 173) – turning “unknown” space into “known” emptied space, available for colonisation and extraction through the extension of legalised property. Reflecting the ideologies of Western mapmakers and epistemological norms, the mapping of the vacant frontier is not only descriptive but also “prescriptive and performative,” producing geographical imaginaries that contribute to the very “making of geography” (Aalbers, 2014, p. 525). In attempting to settle uncertainty, it is also speculative in that it *projects* the hegemony of liberal property into future space. As anthropologist Anna Tsing argues, the frontier asks “participants to see a landscape that doesn’t exist, at least not yet,” and in this “seeing,” to elide current occupants, their histories, and the violence that produces the landscape as a frontier (Tsing, 2004, p. 68, quoted in Safransky, 2014, p. 246). In other words, through the production of speculative cartographies of property, the unknown becomes empty, encounter becomes discovery, and theft becomes legal property. By collapsing diverse past, present, and future property practices into an ever-expanding vacant frontier, racialised “capitalocentric” ownership regimes are made to appear universal, natural, and inevitable (Gibson-Graham, 2006).

In the context of settler colonialism and racial capitalism, “[p]roperty instantiates specifically racialized regimes of accumulation and property entitlement” (Bonds, 2019, p. 576), and the process of mapping proprietary frontiers reinforces these regimes – leaving those who do not fit liberal notions of ownership grounded in whiteness (Harris, 1993) off or in the margins of the map; in its vacant spaces. The cartographic production of vacant space – as empty, “uninhabitable,” and, therefore, “unimaginable” (McKittrick, 2013, p. 6) – has not only allowed for the expansion of state control and capital accumulation but also the consolidation of a “proper,” racialised legal subject – a process reflected in Bhandar’s (2018) concept of “racial regimes of ownership.” The convergence of property and racial difference, as recognised by Bhandar (2018) and others (Blomley, 2003b; Harris, 1993; Roy, 2017; Safransky, 2014, 2020), cannot be limited to a colonial past, but is continually reified through US property laws, policies, and practices. It is also extended into future-space through speculative representations of vacancy. As John Locke (1982 [1690]) disregarded Indigenous geographies when he made claims on the future of “vacant” America, therein justifying settler colonial expansion, contemporary depictions of urban vacancy erase and condemn racialised communities – even as they reflect distinct and situated manifestations of dispossession and devaluation.

Without acknowledging the ways that “race is spatialized” (McClintock, 2018, p. 3), the mapping of urban vacancy naturalises uneven “precarious property relations” (Blomley, 2020). The application of vacancy to racialised communities, whereby they are construed as “the lands of no one,” allows them to be “emptied out of life” (McKittrick, 2013, p. 7). As a marker of “urban decline” in popular discourses, where the state of urban infrastructure is linked to community character, representations of property vacancy can “calcify” the seeming natural links between blackness, underdevelopment, poverty, and place” (McKittrick, 2011, p. 951). This linking opens the future of vacant property for re-settlement, where the risk of “problem” property is addressed through the speculative re-settlement of “proper” (white) property.

Normative notions of speculation, especially in relation to finance, are rooted in a desire to manage and profit from an uncertain future emerging from a risky present. For example, real estate speculation involves taking calculated risks while maintaining an “optimistic expectation” of financial gain (Glaeser, 2013, p. 38). In a time of converging ecological and economic “crises,” concerns for speculative futures are proliferating not only in science fiction and social theory but also in corporate strategy, research and development, military planning, environmentalism, social activism, and urban “Big Data” projects. As put by the uncertain commons collective: “Speculation is our zeitgeist” (2013, p. 2). Within a “risk society” (Beck, 1992), state and market-driven speculation is largely technologically enabled and produced, where concerns about a modernising capitalist future stimulate the ongoing development of technological tools to minimise potential threats and harness possible opportunities. Given their promise of “more all-encompassing, universal and rational explanation[s]” (Shelton, 2017, p. 2) to socio-spatial processes, the speculative compilation and deployment of “Big Data” tools are increasingly used to map uncertainty, considered not only means of reducing risk but also “drivers of creativity and high-gain opportunity” (Agostinho et al., 2019, p. 425). While an analysis of the multiple theoretical and practical trajectories of the speculative is beyond the scope of this paper, here I focus on the (im)materialities of real estate speculation amid the proliferation of “data-driven urban geographical imagination” (Shelton, 2017, p. 3). I also consider the ways that speculation on urban land values both relies on property vacancy as a marker of an expanding “rent gap” between “actual” and “potential” rent (Smith, 2008/1984), and produces it (as speculators may hold properties unoccupied for years). Specifically, in the next section, I examine a model that maps “likely” property vacancy in order to consider the role of speculative cartographies of property in urban governance and planning, whereby visualising (possible) vacancy becomes the grounds to not only secure property but also assign and extract the value(s) of racialised spaces and residents.

3 | MAPPING PHILADELPHIA'S VACANT FRONTIERS

In post-industrial US cities like Philadelphia, vacant properties are framed as harbingers of “neighborhood decline” (Aalbers, 2006) as well as indicators of proprietary “frontiers,” providing “strategic assets” for local governments (Bowman, 2004) and opportunities for venturesome “urban pioneers” (Smith, 1996). As a “problem” for city governance and planning, vacant properties represent losses in tax income, threats to property markets, as well as social, legal, health, and environmental risks. However, the multiple and “elastic” definitions of vacancy in policy and administrative applications – as unoccupied, underutilised, tax-delinquent, wasted, declining, and/or abandoned properties (Morckel, 2014; Pagano & Bowman, 2000) – allow for broad application and uncritical diagnosis. While the urban renewal programmes of the 1950s–60s facilitated the demolition of “blighted” neighbourhoods, current city policies focus on targeted code enforcement and “spot condemnation” of “vacant” property. The increasing use of technological-enabled spatial tools by US cities has “render[ed urban space] knowable, governable and intervene-able” (Shelton, 2017, p. 3), whereby property vacancy is framed as a technical problem to be resolved through prognostic identification, surveillance, and intervention – eliding consideration of associated injustices.

Beginning in the 1980s and 1990s,¹ in the wake of the official end of urban renewal in the US, there has been a shift from reactive to proactive strategies for addressing property vacancy (Hillier et al., 2003; Mardock, 1998; Morckel, 2014), whereby researchers, municipal governments, and community groups have worked to develop “early warning systems” to identify, manage, and prevent vacant properties “at risk of physical decline” (Deng & Ma, 2015; Hillier et al., 2003, p. 92; Pearsall et al., 2014). The increasingly reliance on Big Data-driven problem-solving (Kitchin, 2017; Shelton, 2017) in addition to the use of GIScience to visualise concerns of urban governance (Kitchin, 2014; Shelton et al., 2015) have allowed city agencies to make property boundaries more legible, not only to legal apparatuses and the market but also to the public at large through “open data” and mapping applications. In several cities – including Philadelphia, Baltimore, and Cincinnati – researchers and city officials have taken a pre-emptive orientation further by developing models to predict *future* property vacancy (Bosco, 2017; CityGeo, 2017; Poon, 2017). The move from more traditional cartographic tools to “algorithmic mapping” (Agostinho et al., 2019), where a “lens of an anticipatory security calculus [is] fixated on identifying and diverting risks” (Leszczynski, 2016, p. 1691), means that the use of this data not only serves everyday governance practices but also participates in world-making, actualising and securing a “particular vision of the future city” (Shelton et al., 2015, p. 13) – one in line with urban development norms. As Taylor Shelton writes, state-based (Big) data-driven processes for examining urban issues – such as property vacancy – influence policy, and scholarly and public conceptions of “how cities *ought* to be understood and planned” (2017, p. 12, original emphasis). How they *ought* to be understood is often simply an extension of how they *have been* understood, dependent on similar assumptions and expectations.

In 2014, Philadelphia's Office of Innovation and Technology collaborated with the Department of Licenses and Inspections (L&I) to develop the Vacant Property Indicators Model, which aggregates data from multiple city departments to compile indicators of potential vacancy, calculate the probability of vacancy for each tax boundary, and map these properties.² In the Model, each property is assigned a “Vacant Indicators Rank” to predict if it is “trending towards vacancy.” In November 2020, almost 9,000 buildings and over 28,000 lots were considered by the Model to be “likely vacant” (see Figure 1). According to Model developers, they are hoping to identify not only if properties are currently vacant but also if they are likely to *become* vacant – moving from a diagnostic to a predictive tool.

In the Model, property characteristics are applied as either “positive” or “negative” indicators of vacancy. “Subtractive” indicators suggest that a parcel is not likely to be vacant, such as the presence of construction permits or rental licences. “Additive” indicators – drawn from various city department guidelines used to determine vacancy (there is no citywide definition) – are taken to suggest vacancy. These additive indicators consist of legal and administrative data such as building code violations, water use, and an active vacancy licence. Observational data – including aerial imagery, panoramic street views, and LIDAR – are used to “enhance” the Model by identifying physical signs of vacancy such as roof damage, boarded up windows, and an accumulation of flyers. According to one of the Model developers, the use of observational data to “ground truth the model from the desktop” significantly increases the validity of the assessment of vacancy.

Once subtractive and additive indicators are scored and weighted for each parcel, they are aggregated into a composite score to calculate the likelihood that a property is vacant, and these composite scores are scaled. If the composite score for a building or a lot is greater than 50%, it shows up on the publicly available mapping-interface of the Model as “likely vacant,” a label which maintains a degree of uncertainty about a property's status. At best, as put by L&I's former director of policy and legislative affairs: “Vacancy is [...] a snapshot [as a] property can be vacant today and occupied tomorrow” (Reyes, 2015, n.p.). The indicators are partial and situated – and invisible to the public. While the Model and mapping interface are updated monthly, the indicators – derived from multiple administrative datasets and observational data points – represent diverse, at times conflicting, space-times and definitions of vacancy. For example, vehicle-mounted cameras capture a street view at a specific moment,

which may not correspond to the timing of unpaid water bills. While there are “reset indicators” – taken to mean that a parcel is in use even if other indicators point to vacancy – they are related to administrative processes (i.e., storm water exemptions) and legitimised forms of use (i.e., new building construction). Thus, legally illegible forms of land use – including squatting, “guerrilla” gardening, and informal economic activity – may be elided by the Model.

From an operational standpoint, the Model and mapping application are employed by city employees to confirm “known vacancy,” identify potential vacancy for further inspection, and inform the city’s planning processes. For example, data from the Model is used to inform the operations of the Philadelphia Land Bank, as it examines the geographic distribution of vacancy and its relation to real estate market conditions, to decide where to prioritise the acquisition, sale, and redevelopment of vacant properties (PLB, 2019). Unsurprisingly, the Model data has also been adapted for commercial application, directed at real estate investors. One example, *FixList* (now called *Stepwise*), an online app started in 2015, draws on the city’s vacancy model data to allow investors to identify properties located in “underdeveloped areas ripe for redevelopment,” which, as recognised by one of the app developers, are largely located in low-income African American neighbourhoods. Speculative spatial analysis thus becomes the cutting edge of “speculative urbanization” – in which “underutilised” urban resources and “wasteful spaces” are “relentlessly” mobilised for “highest and best use” – opening up perpetual frontiers for extractive accumulation (Gidwani & Reddy, 2011, p. 1640).

In addition to serving city planning and private redevelopment projects, the Model and mapping application importantly informs the city’s Department of Licenses and Inspections (or L&I) as it seeks to maintain the city’s public/private property, protecting it from the risks of “improper” use and users. In Philadelphia, L&I – originally created in 1951 for “slum prevention” (L&I, 1958, p. 14) – has long considered its mission to proactively protect property from “blight” and vacancy. As reflected in their 1958 annual report, L&I “guards the buildings and land of Philadelphians just as the Police Department protects their lives and safety” (L&I, 1958, p. 14). The current Vacancy Model represents part of L&I’s efforts to “modernize code enforcement through strategic use of [predictive] technology” (L&I, 2019, p.11). It is, as put by one of the Model developers, a “half predictive and half reactionary model,” allowing for “proactive inspections,” whereby L&I can prioritise high-probability vacant properties – especially in neighbourhoods with “up-and-coming” property markets – and therein “address blight” by “crack[ing] down” on property abandonment using legal tools to hold owners accountable. The Model thus serves as an “intermediar[y] between law and territory” (Braverman, 2011, p. 185), actively producing legal geographies for current and future law enforcement.

According to a developer of the Vacancy Model, members of the Philadelphia police department have considered utilising the Model in their predictive policing applications. Despite ongoing critique of theories of crime grounded in urban ecology (Herbert & Brown, 2006; Jefferson, 2016), the association of physical disorder (often represented by vacant property) with criminal activity continues to be reflected in policing tactics (Jefferson, 2018), reiterated by scholarly studies (Branas et al., 2012; Cui & Walsh, 2015), and reproduced in city planning processes (see PHA, 2015). In this case, speculating about the likelihood of property vacancy extends to speculation about the presence of residents living on the edge or outside of property – and even criminal – law. Thus, while framed in terms of efficiency and proactive governance, the process of making these properties legible to city law enforcement bodies and service providers, as well as the public, serves a disciplinary function. Not only does the visual mapping of likely vacancy enable targeted code enforcement – and push owners of “likely vacant” properties to renovate, obtain the appropriate licences, clear title, or sell – it also potentially contributes to the identification of neighbourhoods for targeted policing measures. More than that, as discussed in the following section, in failing to acknowledge how the structural racism undergirding urban property markets shapes “indicators” of vacancy, the projection of vacancy onto neighbourhoods can reproduce “the racialization of crime and poverty” (Bonds, 2019, p. 5).

Reflecting on the operationalisation of Philadelphia’s Vacancy Model, it is useful then to consider the mapping application through a performative lens (Aalbers, 2014; Shelton, 2017). In speculating about the likelihood of urban vacancy, it not only represents normative geographical imaginaries of vacancy but also produces space as a proprietary void. Mapping “likely vacancy” allows solutions to “problem” properties to be framed in terms of both managing neighbourhood decline – “defined in social as well as in physical terms” (Aalbers, 2006, p. 1062) – and speculating on vacant properties as commensurate sites of potential risk and improvement. Property and criminal law are projected onto space even as they fade into the background, reflecting what legal geographer Irus Braverman (2011) calls the law’s “double use of vision,” whereby the law is reliant on making physical spaces visible, while using “this same conspicuous visibility to make its own ideological presence invisible” (p. 186). This double use of vision naturalises property vacancy, erases histories of discrimination, justifies policing measures, and makes room for real estate speculators. As a form of “geolegal technology,” by assessing vacancy – and thus the legal legibility of properties – according to specific spatial and temporal indicators, the Vacancy Model “heighten[s] visibility,” but it “promotes various invisibilities” (Braverman, 2011, p. 179). As a seemingly “objective” tool, the Model not only obscures multiple past, present, and potential uses of these properties but also elides “the ideological places of law in this landscape”

(Braverman, 2011, p. 185) – such as the ways that property law produced, produces, and will reproduce urban vacancy. In part, this can be ascribed to the tendency of municipal law and planning to rely on maps and other visuals that “privilege space and matter rather than people” (Valverde, 2005, p. 36). However, as discussed in the next section, this tendency and the production of vacancy are not apolitical but extend proprietary norms in ways that maintain racialised regimes of property.

4 | SPECULATING ON THE REDLINE

As previously discussed, the application of the Vacancy Indicators Model serves a disciplinary function, allowing for targeted enforcement of legal regulations and the re-securing of legally legible forms of land use. Utilised by city agencies to mark and manage likely vacant properties, the Model also facilitates speculation about “improper” property subjects. As pointed out by Bhandar, racialised ideologies of improvement have long linked land and populations by “binding the value of one to the other,” casting “wasted” land and those who rely on it as in need of improvement (2018, p. 39). Land and buildings are improved through the identification, and subsequent disciplining or displacement, of improper use and users. There is no consideration within the Model of the implications of projecting vacancy into neighbourhoods with majority low-income African American and Latinx residents – thereby racialising vacancy, where neighbourhoods with high concentrations of “likely” vacant properties become “classified as imperiled and dangerous, or spaces ‘without’” (McKittrick, 2011, p. 951). Framing the identification of property vacancy in terms of risk assessment and management, where vacant properties both indicate and forecast socio-spatial “decline,” allows for slippage between the character of physical spaces and often-racialised residents.

Without accounting for the situated context of property vacancy, the Model also collapses differences among “improper” owners. It flattens distinctions, for example, between the absent “blight lord” speculating on the frontier of gentrifying real estate markets and the individual homeowner who cannot access the credit she needs to repair her roof due to racially discriminatory lending practices. While the Model may allow for the enforcement of fines and penalties on absent investors accumulating land for a future payday, it can also contribute to the criminalisation and dispossession of racialised owners and neighbourhoods. Both an inattention to context and the slippage between physical characteristics and neighbourhood character reinforce a “socially constructed relationship between race and risk” (Hernandez, 2009, p. 294) that has contributed to the ongoing segregation of many US cities – and has been long been reflected in speculative cartographies of urban property.

In addition to visualising the likely vacancy of individual buildings and lots, Philadelphia's Vacant Property Model online mapping application offers a “vacant block percentage” to predict the percentage of properties on any given city block that are “likely vacant.” On the map, blocks with a higher percentage of “likely vacant” properties are indicated by shades of red, whereas blocks with a lower percentage of “likely vacant” properties are visualised in shades of blue. This colour-coding of Philadelphia's neighbourhoods echoes that of the “Residential Security” maps of major US cities, produced by the government-sponsored Home Owners' Loan Corporation (HOLC) between 1935 and 1940. These maps included neighbourhood-level risk assessments, whereby city blocks were colour-coded according to perceived level of risk for mortgage lenders. The colour red was used to indicate areas of high risk, associated with “declining neighborhood condition” and the presence of “lower-class occupancy, and inharmonious racial groups” – especially African American and immigrant residents (FHA, 1936, p. 229; Jackson, 1985). Areas marked with blue and green, on the other hand, represented the “Still desirable” and “Best” areas to make loans, and often correlated with Anglo-Saxon wealthy and middle-class residents. While these “redlining” maps did not invent racialised lending practices, they did help to institutionalise and normalise them (Aalbers, 2014) – and project racialised de-valuations of real estate into neighbourhood futures.

Indeed, the resonance between Philadelphia's contemporary vacancy map and historic redlining maps reflects the continuities of racialised urban segregation and dispossession. When compared to the 1937 HOLC map of Philadelphia, city blocks where more than 25% of properties are deemed “likely vacant” by the current Vacancy Model are largely concentrated in areas historically redlined – designated as “hazardous” and “definitely declining” (see Figure 2). A 2018 report from the National Community Reinvestment Coalition comparing historic HOLC maps with contemporary US Census data found that in Philadelphia, 61% of the areas designated as “hazardous” in the HOLC maps are currently in low-to-moderate income census tracts and 69% have “majority-minority” populations (Mitchell & Franco, 2018). When considering the Vacancy Model in relation to Census data, the majority of city blocks where over a quarter of the properties are predicted to be “likely vacant” are located in census tracts where more than half of residents do not identify as white – and principally identify as African American and “Hispanic.”³ It thus (re)produces a racialised geographical imagination of urban vacancy that contributes to “territorial stigmatization” (Wacquant, 2007) by associating certain city spaces with risk and abandonment (Shelton, 2017).⁴ These statistics reflect the reverberations of speculative cartographies of property and the racialisation of urban vacancy.

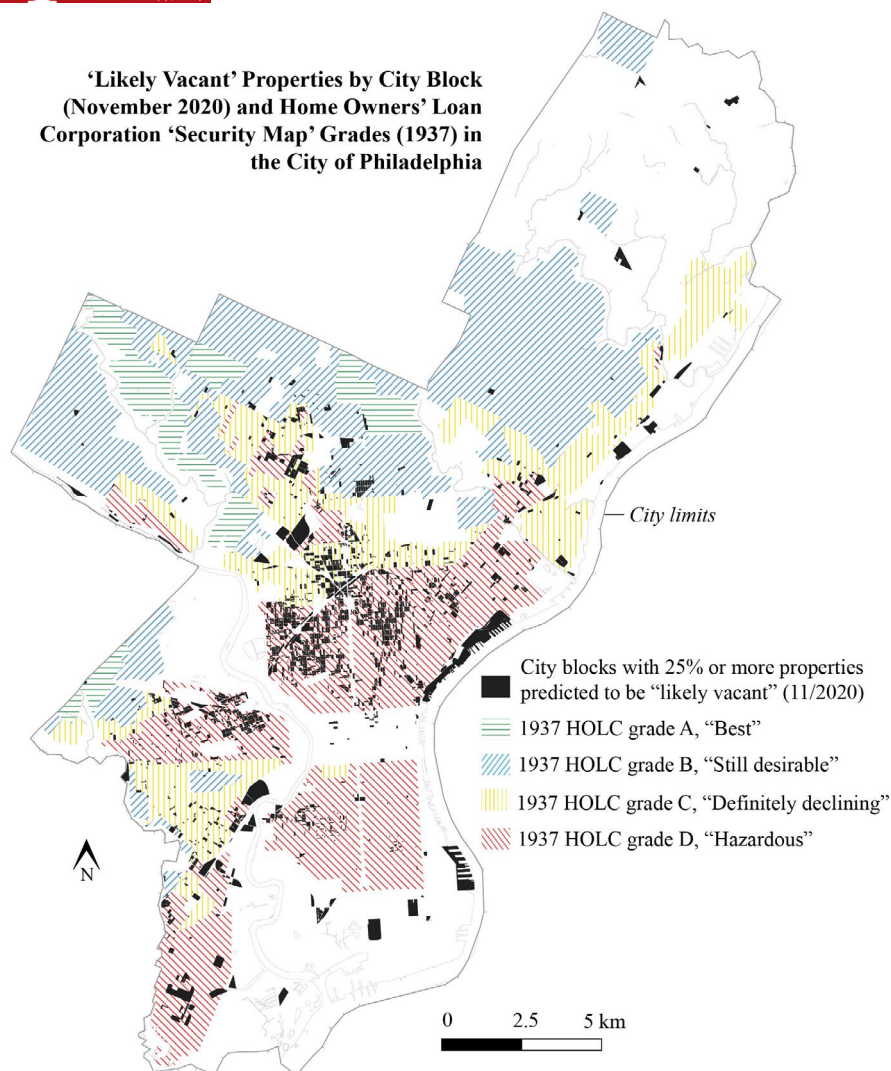


FIGURE 2 Philadelphia "likely vacant" properties by city block in 2020 and 1937 Home Owners' Loan Corporation "Security Map" grades. Data Sources: Philadelphia 1937 Home Owners' Loan Corporation "security map" from "Mapping Inequality," *American Panorama*, ed. R. Nelson and E. Ayers, accessed February 9, 2019, dsl.richmond.edu/panorama/redlining; Vacant Property Indicators Percentage by Block - Combined, Philadelphia Office of Innovation and Technology, November 2020

The resonances between Philadelphia's historic redlining and contemporary vacancy maps reflect a cartographic reiteration whereby the mapping of potential risk reproduces existing ways of understanding and organising space (Corner, 1999). In other words, speculative cartographies of property involve reproducing spatio-temporal imaginaries. In discussing changes in "the science of mapping" due to the ubiquitousness of big data technology, Agostinho et al. suggest that through algorithmic mapping "the future is folded back into the past" (2019, p. 426), in order to predict the future. However, this future is "limited by the historical data used to train the system," so that "[i]f the input data are racist and sexist, the output will most likely also be racist and sexist" (Agostinho et al., 2019, p. 426). While the historic HOLC and contemporary vacancy maps are not the same, they do share ideological traces that reify liberal property regimes through racialised visualisations of risk (see also Safransky, 2020). More than that, they both *anticipate* space in similar ways, prefiguring the ongoing racialisation of urban property ownership and dispossession. Residents in redlined areas often had difficulty gaining access to credit, contributing to the proliferation of "greenlining" (Smith, 1996), whereby historic residential segregation facilitated "racially targeted subprime mortgage lending" (Rugh & Massey, 2010, p. 635). Living on city blocks with a high percentage of "likely vacant" properties, residents may now find themselves targets of law enforcement as the city increasingly relies on this vacancy data for securing buildings and residents, and targets of real estate speculators utilising this data to identify frontiers for redevelopment.

The decontextualised “objective” data of the Vacancy Model omits consideration of the ways that US housing policies and the housing finance market “produce [...] racial inequity” (Hernandez, 2009, p. 293). The city’s Vacancy Model thus reflects how ostensible “objective” spatio-legal tools and “neutral” terms, such as vacancy, can “displace attention” from “the ongoing roles that structural racism plays in producing interlinked spaces of class and racial segregation” (Lloyd & Bonds, 2018, p. 903). The seemingly innocuous “additive” indicators for the likelihood of vacant property work to naturalise urban vacancy by “disarticulat[ing] the racial foundations of property ownership in the U.S. real-estate market,” thereby “sidelining” the country’s continuities of racialised dispossession (Bhandar & Toscano, 2015, p. 15). As a kind of speculative cartography of property, it is thus critical to attend to how the Model projects this vacancy in order to “re-politicize data-driven analytics” that city officials and planners increasingly rely on to make decisions about urban futures (Safransky, 2020, p. 202). While property abandonment and disinvestment are important issues unevenly affecting Philadelphia’s neighbourhoods, presented as neutral and decontextualised technical knowledge, the Model obscures forms of racial inequity that proliferate in the maintenance of liberal property regimes and, given its speculative orientation, its use – by city agencies, real estate investors, and even residents – can extend these socio-spatial inequities into vacated future spaces.

In light of these concerns, what might an alternative model of mapping out the future of urban space look like? In addition to situating maps and critiquing their ideological underpinnings, some critical geographers have argued for examining the underlying assumptions in geographic information data and mapping – especially the continued reliance on dominant conceptions of space that render “a complex spatiality into abstract space” (Roth, 2009, p. 208). Instead, they encourage the cultivation of “more-than-Euclidean, nonabsolute spatial representations” (O’Sullivan et al., 2018, p. 130), playful “geographical imagination systems” (Bergmann & Lally, 2021, p. 26), and creative approaches to counter-mapping (Roth, 2009). For one, Luke Bergmann (2016) calls for embracing “speculative data,” the multiple “potentialities” of data, in order to “offer approaches to reconstructing geographic information in which spaces are relational, matter is vibrant, and/or knowledge is situated” (p. 973). Considering this work in relation to spatial imaginaries emerging from Black geographies and futurisms scholarship and praxis, in the next section, I attend to an example of counter-mapping in Philadelphia that offers an alternative perspective of speculating on urban vacancy. I consider how speculative (counter)cartographies of property emerging in different spatio-temporal registers shift not just considerations of geographic information, but geographical imaginaries. In other words, how might counter-mappings of urban vacancy serve as a form of what feminist scholar Caitlin Gunn (2019) calls “radical speculation,” moving beyond surviving the violence of racial regimes of ownership to “imagine futures unbound by ideologies and structures designed to delimit black lives” (p. 16)?

5 | RADICAL SPECULATIVE CARTOGRAPHIES

What is not accessible except by imagination can be re-presented on a map. (Rasheedah Phillips, “You are now here,” 2018c)

Within Black radical, feminist, and Afrofuturist praxis and art, speculation as a liberatory practice is often framed as a political imperative – especially for those marginalised by current systems of power and violently excluded from white supremacist, heteronormative, patriarchal, ablest futures (Carruthers, 2018; Dery, 1994; Keeve, 2019; Kelley, 2002). In her manifesta on “Black Feminist Futurity,” Caitlin Gunn argues that “[i]maging black futures is an urgent obligation, not a luxury, due to the impacts of state violence” (2019, p. 16). Toward this end, Gunn frames Black feminist imaginaries as participating in “radical speculation,” moving political engagement past “the mental hurdles of feasibility” to engage in “speculative play,” free to “imagine futures, reclaim histories, and create alternative realities” (2019, p. 16). This kind of radical speculation also emerges in Black geographies scholarship, where the imaginative serves as a key site for creative resistance – to counter the processes that foreclose Black lives and futures, to prefigure alternatives, and to develop new analytical registers (Brand & Miller, 2020; McKittrick, 2006, 2013, 2016; Woods, 2017). In considering the ways that “the cyclical and death-dealing spatialization of the condemned and those ‘without’ remains analytically intact” through discourses and studies of racial violence, Katherine McKittrick calls for a “re-imagin[ing]” of Black geographies, emerging from “practical activities of resistance, encounter, and anti-colonial thinking” (2011, p. 995). This re-imagining cultivates “the context through which black futures are imaginable” (2013, p. 12), and “fosters more humanly workable, and alterable, geographic practices” (p. 15).

To begin to think about “re-imagining” speculative (counter)cartographies of property as liberatory rather than a repetition of the abject abstraction of racial regimes of ownership, I turn to the “radical praxis” (Phillips, 2018a) of the Philadelphia-based Black Quantum Futurism collective. Black Quantum Futurism, a project of writer, artist, and public interest attorney Rasheedah Phillips and artist Camae Ayewa (also known as Moor Mother), seeks to “inspire practical techniques of vision and agency

against a forever expanding reconquering of land, housing, and health in Black communities” (Phillips, 2018a, n.p.). Black Quantum Futurism draws on quantum physics and Black/African traditions of time and space, as well as consciousness, in order to offer “a new approach to living and experiencing reality by way of the manipulation of space-time” that resists Western hierarchical, unidirectional notions of space and time (Phillips, 2015, p. 11).

Here, I consider Black Quantum Futurism's (BFQ) use of mapping and spatial analysis grounded in Afrofuturistic epistemologies to re-frame the North Philadelphia neighbourhood “known currently as Sharswood” (Phillips, 2020, p. 20), which has been designated by the city to be empty and lacking, requiring condemnation, expropriation, and redevelopment. BQF's work arguably offers one means of thinking about how to resituate proprietary space-times by refiguring notions of speculation as *radical* (moving beyond survival within a hegemonic property regime), and vacancy as *multidimensionally occupied*, reflecting the intermingling of past-present-future space, where memories, injustices, and potentialities are re-stitched together. Even as cartographic speculation may re-constitute racial regimes of property by visualising vacancy as empty space, mapping contingent and situated “speculative geographies” of “vacant” property that “force thought open to dynamic sites” (Woodward, 2016, p. 340) may allow for experiments in regime change.⁵

In 2016, the Norman Blumberg Apartments – a public housing complex in Sharswood described by the Philadelphia Housing Authority as a “significant obstacle to neighborhood revitalization” (PHA, 2015, p. 41) – was demolished, displacing 500 families (Hahn, 2016). This demolition was part of a ten-year PHA redevelopment plan to “remake” Sharswood, where residents are largely low-income and African American. This plan for “blight elimination” also involved the expropriation of 800 neighbourhood private properties through eminent domain – the majority of them (727) deemed “vacant” by the city – raising concerns among residents that it was simply “urban renewal in new clothes” (Hahn, 2016, n.p.). Amid anxieties about the future of the neighbourhood, adjacent to a rapidly gentrifying area, the Black Quantum Futurism collective organised a “Community Futures Lab,” which operated out of a storefront in Sharswood from 2016 to 2017, functioning as a workshop space, library, and housing resource centre. Designed as an Afrofuturistic “experimental safe(r) space” for residents who were concerned about the planned redevelopment, the Lab offered a space to cultivate multiple visions of Sharswood's future and preserve “the Black historical past” at risk of erasure (Phillips, 2020, pp. 13–14).

The Lab's work included “oral futures interviews” and “community memory mapping,” 2020 where residents repopulated Sharswood by mapping histories and alternative futures of razed buildings, reshaped landscapes, and displaced neighbours (see Phillips, 2020, pp. 16–17). It also included housing journey maps, where residents reflected on the past, present, and future of housing given the ever-present fears of displacement amid the neighbourhood's “revitalisation.” These mappings arguably allowed residents to construct “counter-cartographic narrative[s]” (Vélez & Solórzano, 2018, p. 150) that foregrounded the complexity, diversity, and power of their lived experiences of Sharswood. In doing so, they sought to “dismantle the prevalent, contemporary narrative about the neighborhood [...] as poor, crime-ridden, and without historical significance” (Phillips, 2020, p. 13), by re-valuing “vacant” and “blighted” properties – speculating on their past-present-future as homes, schools, organising spaces, music venues, and artist studios. These mappings thus not only offered interventions into the underlying spatio-temporal assumptions of the PHA planning maps of the area, which marked over 26% of housing units as “vacant” (PHA, 2015, p. 18), but also a means to consider the ways that, in the words of Rasheedah Phillips, “maps make the past and future present,” and thus are always “representing and embodying a bunch of fused spacetimes,” connecting the embedded past, the situated mapmaker, and the future user (Phillips, 2018c). As put by Phillips, while the redevelopment maps of Sharswood “embod[ied] agreements, understandings, contracts, negotiations,” where the “[m]apmaker has power of representation, scale, symbols,” the maps did not “represent the lived experiences” of those who have long called Sharswood home (Phillips, 2018c). Instead, as “tools of abstract space” (Aalbers, 2014, p. 528), the city's planning maps framed Sharswood as “blighted” and vacant, requiring a particular vision of “revitalisation” to address crime and poverty.

Even as the Community Futures Lab offered alternative mappings of redevelopment, Black Quantum Futurism also pointed to the glitches and lags as “current” maps of Sharswood updated to reflect the changing neighbourhood. These glitches and lags, Phillips suggested, revealed the multiple “temporal layers” of space, whereby public housing towers and murals of the area's past remained partially visible on the street view of Google maps long after they were vacated, demolished, and replaced (Phillips, 2018c). Through these cartographic snags, the neighbourhood was thus simultaneously vacant and occupied, demolished and redeveloped – overlapping present-past-future space-times. These disruptions offer the potential to “see” space differently – revealing both the techno-legal infrastructures hovering in the background (Phillips looked for the camera in Google street view) and a glimpse into an alternative space-time in which Blumberg Apartments still stood. As artist Rosa Menkman has written, glitches offer “a not yet defined break from a procedural flow, fostering a critical potential” (2011, p. 27 quoted in Agostinho et al., 2019, p. 434) – a potential not only to challenge “regimes of control” (Agostinho et al., 2019, p. 434), such as racial regimes of property that erase racialised communities and displace their past/futures, but also to engage in radical speculation about the future. As Phillips puts it, Black Quantum Futurism's work “reappropriates clocks and maps to deconstruct

hegemonic Western Spacetimes” and, in so doing, “create[s] maps that embrace the inherent tensions between space and time and that provide opportunities for reconfiguration of the same” (2018b, n.p., 2017).

While the city's redevelopment of Sharswood has moved forward, the Community Futures Lab reflects an important intervention in urban planning processes that reproduce urban vacancy as erasure. Through the Lab and ongoing work in the community,⁶ Black Quantum Futurism arguably offers a vision of what radical speculative (counter) cartographies of property might look like when freed from normative spatial assumptions and historiographies of urban development – a methodology for how we might map the future of our cities in a way that contributes to the alternative archiving of multiple past, present, and future spaces. Rather than prescribing any one path forward, by engaging in “speculative play” (Gunn, 2019, p. 16) their work involves multiple mappings of nonlinear space-time trajectories – of how we might get from the future to the past to the present.

In the summer of 2017, I participated in a mapping workshop, “You are Here,” that Black Quantum Futurism had organised as part of *Philadelphia Assembled*, a citywide community art programme. The workshop centred on the ways that “maps have been used to disempower people and communities and how they can be used as liberatory and revelatory tools” (Phillips & Ayewa, 2017, n.p.). As part of the workshop, participants created a sound map of Sharswood – near where the Norman Blumberg Apartments used to stand – following the sounds of cars backfiring, footsteps on the sidewalk, laughter at a block party, and silences of the spaces emptied by the Philadelphia Housing Authority redevelopment plan. In making the map, we walked past a boarded up, lone row house – the houses on either side had been demolished – and on the door someone had spray-painted: “Blissful: I am a home / LIVE IN” (see Figure 3). This message struck me as exemplifying what radical speculative (counter) cartographies of property might communicate. Description and imperative, this could be a message from “a post-scientist sorting artifacts after the end of the world” – to draw on the language of Alexis Pauline Gumbs’ “speculative documentary” – highlighting the multiple “realities we are making possible or impossible” every day (2018, p. xi). It suggests a reclamation of past and future, where “vacant” property is reframed as (be)coming “home,” where we might (once again) blissfully “live in.”



FIGURE 3 Photo taken in Sharswood, Philadelphia by author (2017)

In radical speculative (counter) cartographies of property, then, *terra nullius* or the “lands of no one” (McKittrick, 2013) can be critically and creatively re-mapped, recognising that present and future liberation are continually “shaped by the limits of our imaginations” (Gumbs, 2011, p. 131), including our geographical imaginations.

6 | CONCLUSION

The city of Philadelphia's speculative cartographic tools used to predict vacant property depend on a discernibility of vacancy that undergirds a decontextualised property regime, eliding the legacies and continuities of structural violence, diverse property practices, and potential alternative futures of these spaces outside the logics of liberal property. Instead, these mapping tools and practices exemplify what John Pickles (2004) calls the “cartographic gaze” (p. 77), drawing on “technologies of vision” to reduce complexity under a transcendental “controlling gaze” (p. 80). Despite efforts to “ground-truth the model from the desktop,” which itself reflects a form of technological mediation, these mapping efforts involve the “violence of abstraction” (Bhandar & Toscano, 2015, p. 8), whereby proprietary space is “disembedded from lived relations and social relations” (Blomley, 2003a, p. 127). In other words, space is not so much identified as *produced* as vacant, allowing for “ease in the realization of land commodification” as well as the perpetuation of the devaluation and displacement of often racialised communities (Bhandar, 2018, p. 82). Attending to how we map out present-future “vacant” space – including the assumptions and expectations grounding these speculations – is critically important to understanding the continuities of injustice and inequity. In considering what these maps *do*, as well as what they represent, it is clear that they “reinforce and legitimate the status quo” of racial regimes of property (Corner, 1999; Harley, 1989, p. 14). But more than that, given their speculative orientation, they project these regimes into uncertain present and future spaces, whereby *potentially* vacant spaces become sites for disciplining proprietary subjects and insisting on certain visions of “revitalising” improvement, where “likely” improper property and proprietary subjects are re-secured. The effort to use maps to predict urban vacancy thus serves as a form of what the uncertain commons collective (2013) calls “firmative speculation,” whereby a recognition of uncertainty and insecurity in the present results in efforts aimed at “solidifying [...] the possibilities of the future” (p. 5) – by securing an “optimistic” future for speculative capital.

However, the recognition of this uncertainty and insecurity undergirding liberal property regimes also creates an opening to refigure the past, present, and future of property, and develop “affirmative” forms of speculation that remain “open to multiple futures” (uncertain commons, 2013, p. 5). The ambiguity embedded in speculative cartographies of property, such as Philadelphia's Vacancy Model, reveals the situatedness and contingency of the “doing” of property, or the practices associated with constituting property regimes (Blomley, 2003a, p. 135; Rose, 1994). Developing *radical* speculative (counter) cartographies of property, where “geographical imaginations are [recognised as] important sites of struggle” (Dalton & Mason-Deese, 2012, p. 443), offers opportunities to contest the imaginative hold of such proprietary regimes in the present by remapping the past/future and highlighting multiplying liberatory trajectories that emerge in acts of everyday resistance. In addition, attending to the ways that community-based projects, like Black Quantum Futurism's Community Futures Lab, are already mapping out multiple speculative futures in response to city planning processes that frame their neighbourhoods as “vacant” is critical in efforts to cultivate “new spatial imaginari[es],” that are “not merely anti-colonial or anti-racist,” but rather are “entirely otherwise” (Bates et al., 2018, p. 254). Finally, speculative counter-mapping grounded in Afrofuturisms and Indigenous futurisms have much to offer in efforts to reconfigure geographical information and imaginaries to account for the complexity and multiplicity of space-time.

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DATA AVAILABILITY STATEMENT

Research data are not shared.

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ENDNOTES

- ¹ Although, as Crowe and Foley (2017) point out, the mapping of urban vacancy has a longer history.
- ² See mapping interface at <http://www.phila.gov/vacancymap>.
- ³ Comparing Philadelphia's Vacancy Property Indicators Percentage by Block (February 2019) with Delaware Valley Regional Planning Commission's 2018 Indicators of Potential Disadvantage based on 2014–2018 American Community Survey 5-Year Estimates from the U.S. Census Bureau.
- ⁴ Shelton (2017) found a similar pattern in Louisville, Kentucky, where the city's mapping of property vacancy conflated the issue with a neighbourhood with predominately low-income African American residents.
- ⁵ While Stivale (1998, pp. 218–219), drawing on the work of Deleuze and Guattari, utilises “speculative cartography,” to describe cartography that has “no pretension of accounting for concrete cartographies,” here, speculative (counter) cartographies of property are situated, offering a means of contesting hegemonic cartographies that seek to colonise the future of real estate.
- ⁶ Including a recent interactive online map and archive – see <https://futureslab.community/>.

REFERENCES

- Aalbers, M. (2006) ‘When the banks withdraw, slum landlords take over’: The structuration of neighborhood decline through redlining, drug dealing, speculation and immigrant exploitation. *Urban Studies*, 43, 1061–1086. Available from: <https://doi.org/10.1080/00420980600711365>
- Aalbers, M. (2014) Do maps make geography? Part 1: Redlining, planned shrinkage, and places of decline. *ACME*, 13, 525–556. Available at: <https://acme-journal.org/index.php/acme/article/view/1036>
- Agostinho, D., D’Ignazio, C., Ring, A., Thylstrup, N. & Veel, K. (2019) Uncertain archives: Approaching the unknowns, errors, and vulnerabilities of big data through cultural theories of the archive. *Surveillance & Society*, 17, 422–441. Available from: <https://doi.org/10.24908/ss.v17i3/4.12330>
- Bates, L., Towne, S., Jordan, C.P. & Lelliott, K.L. (2018) Introduction: What shakes loose when we imagine otherwise. *Planning Theory and Practice*, 19, 254–288. Available from: <https://doi.org/10.1080/14649357.2018.1456816>
- Beck, U. (1992) *Risk society: Towards a new modernity*. London, UK: SAGE Publications.
- Belyea, B. (1997) Mapping the Marias: The interface of Native and scientific cartographies. *Great Plains Quarterly*, 17, 165–184. Available at: <https://digitalcommons.unl.edu/greatplainsquarterly/1946/>
- Bergmann, L. (2016) Towards speculative data: ‘Geographic information’ for situated knowledges, vibrant matter, and relational space. *Environment and Planning D: Society and Space*, 34, 971–989. Available from: <https://doi.org/10.1177/0263775816665118>
- Bergmann, L. & Lally, N. (2021) For geographical imagination systems. *Annals of the American Association of Geographers*, 111(1), 26–35. Available from: <https://doi.org/10.1080/24694452.2020.1750941>
- Bhandar, B. (2018) *Colonial lives of property: Law, land, and racial regimes of ownership*. Durham, NC: Duke University Press.
- Bhandar, B. & Toscano, A. (2015) Race, real estate, and real abstraction. *Radical Philosophy*, 4, 8–17. Available at: <https://www.radicalphilosophy.com/article/race-real-estate-and-real-abstraction>
- Blomley, N. (2003a) Law, property, and the geography of violence: The frontier, the survey and the grid. *Annals of the Association of American Geographers*, 93, 121–141. Available from: <https://doi.org/10.1111/1467-8306.93109>
- Blomley, N. (2003b) *Unsettling the city: Urban land and the politics of property*. New York, NY: Routledge.
- Blomley, N. (2020) Precarious territory: Property law, housing, and the socio-spatial order. *Antipode*, 52, 36–57. Available from: <https://doi.org/10.1111/anti.12578>
- Bonds, A. (2019) Race and ethnicity I: Property, race, and the carceral state. *Progress in Human Geography*, 43, 574–583. Available from: <https://doi.org/10.1177/0309132517751297>
- Bosco, E. (2017) *Battling blight: Four ways cities are using data to address vacant properties*. August 21. Data-Smart City Solutions. Ash Center for Democratic Governance and Innovation, Harvard Kennedy School. Available at: <https://datasmart.ash.harvard.edu/news/article/battling-blight-four-ways-cities-are-using-data-to-address-vacant-properties>
- Bowman, A. (2004) *Terra incognita: Vacant land and urban strategies*. Washington, DC: Georgetown University Press.
- Branas, C., Rubin, D. & Guo, W. (2012) Vacant properties and violence in neighborhoods. *International Scholarly Research Network: Public Health*, 2012, 1–9. Available from: <https://doi.org/10.5402/2012/246142>
- Brand, A.L. & Miller, C. (2020) Tomorrow I’ll be at the table: Black geographies and urban planning – A review of the literature. *Journal of Planning Literature*, 35, 460–474. Available from: <https://doi.org/10.1177/0885412220928575>
- Braverman, I. (2011) Hidden in plain view: Legal geography from a visual perspective. *Law, Culture and the Humanities*, 7, 173–186. Available from: <https://doi.org/10.1177/1743872109355579>
- Briggs, R. (2019) Philly set a new record for construction in 2019 – thanks to these gentrifying neighborhoods. *WHYY, Plan Philly*, 24 December. Available at: <https://whyy.org/articles/philly-set-a-new-record-for-construction-in-2019-thanks-to-these-gentrifying-neighborhoods/>
- Carruthers, C. (2018) *Unapologetic: A black, queer, and feminist mandate for radical movements*. Boston, MA: Beacon Press.

- CityGeo. (2017) *Predicting and tracking vacant property by data modeling in ArcGIS: A model for validating and predicting the locations of vacant property across Philadelphia*. Philadelphia, PA: Philadelphia Office of Innovation and Technology. Available at: <http://arcgis.com/1uSG8b>
- Corner, J. (1999) The agency of mapping: Speculation, critique, and invention. In: Cosgrove, D. (Ed.) *Mappings*. London, UK: Reaktion, pp. 213–252.
- Crowe, P. & Foley, K. (2017) Exploring urban resilience in practice: A century of vacant sites mapping in Dublin, Edinburgh and Philadelphia. *Journal of Urban Design*, 22, 208–228. Available from: <https://doi.org/10.1080/13574809.2017.1298401>
- Cui, L. & Walsh, R. (2015) Foreclosure, vacancy and crime. *Journal of Urban Economics*, 87, 72–84. Available from: <https://doi.org/10.1016/j.jue.2015.01.001>
- Dalton, C. & Mason-Deese, L. (2012) Counter (mapping) actions: Mapping as militant research. *ACME*, 11, 439–466. Available at: <https://acme-journal.org/index.php/acme/article/view/941>
- Delaware Valley Regional Planning Commission. (2018) *2018 Tract-level indicators of potential disadvantage for the Delaware Valley Regional Planning Commission Region*. Available at: <https://www.dvrpc.org/webmaps/IPD/>
- Deng, C. & Ma, J. (2015) Viewing urban decay from the sky: A multi-scale analysis of residential vacancy in a shrinking U.S. city. *Landscape and Urban Planning*, 141, 88–99. Available from: <https://doi.org/10.1016/j.landurbplan.2015.05.002>
- Dery, M. (1994) Black to the future: Interviews with Samuel R. In: Delany, G.T., Rose, T. & Dery, I.M. (Eds.) *Flame wars: The discourse of cyber-culture*. Durham, NC: Duke University Press.
- Fairbanks, R. II (2009) *How it works: Recovering citizens in post-welfare Philadelphia*. Chicago, IL: The University of Chicago Press.
- Federal Housing Administration (FHA). (1936) *Underwriting and valuation procedure under title II of the National Housing Act. FHA Form No. 2049*. Washington, DC: Federal Housing Administration.
- Gibson-Graham, J.K. (2006) *The end of capitalism (as we knew it): a feminist critique of political economy*. Minneapolis, MN: The University of Minnesota Press.
- Gidwani, V. & Reddy, R. (2011) The afterlives of ‘waste’: Notes from India for a minor history of capitalist surplus. *Antipode*, 43, 1625–1658. Available from: <https://doi.org/10.1111/j.1467-8330.2011.00902.x>
- Glaeser, E. (2013) A nation of gamblers: Real estate speculation and American history. *American Economic Review*, 103, 1–42. Available from: <https://doi.org/10.1257/aer.103.3.1>
- Goldstein, I. & Urevick-Ackelsberg, D. (2008) *Subprime lending, mortgage foreclosures and race: How far have we come and how far have we to go?*. Philadelphia, PA: The Reinvestment Fund.
- Gregory, D. (1994) *Geographical imaginations*. Cambridge, MA: Blackwell.
- Gumbs, A.P. (2011) Speculative poetics: Audre Lorde as prologue for queer Black futurism. In: Jackson, S. & Moody-Freeman, J. (Eds.) *The Black imagination: Science fiction, futurism and the speculative*. New York, NY: Peter Lang Publishing Inc, pp. 130–145.
- Gumbs, A.P. (2018) *M archive: After the end of the world*. Durham, NC: Duke University Press.
- Gunn, C. (2019) Black feminist futurity: From survival rhetoric to radical speculation. *Feral Feminisms*, 9, 15–20. Available at: <https://feralfeminisms.com/wp-content/uploads/2019/12/2-Gunn.pdf>
- Hahn, A. (2016) Remaking sharswood. *WHYY.org*, 22 February. Available at: <https://whyy.org/articles/remaking-sharswood/>
- Harley, J. (1989) Deconstructing the map. *Cartographica*, 26, 1–20. Available from: <https://doi.org/10.3138/E635-7827-1757-9T53>
- Harris, C. (1993) Whiteness as property. *Harvard Law Review*, 106, 1707–1791. Available from: <https://doi.org/10.2307/1341787>
- Herbert, S. & Brown, E. (2006) Conceptions of space and crime in the punitive neoliberal city. *Antipode*, 38, 755–777. Available from: <https://doi.org/10.1111/j.1467-8330.2006.00475.x>
- Hernandez, J. (2009) Redlining revisited: Mortgage lending patterns in Sacramento 1930–2004. *International Journal of Urban and Regional Research*, 33, 291–313. Available from: <https://doi.org/10.1111/j.1468-2427.2009.00873.x>
- Hillier, A., Culhane, D., Smith, T. & Tomlin, C.D. (2003) Predicting housing abandonment with the Philadelphia neighborhood information system. *Journal of Urban Affairs*, 25, 91–105. Available from: <https://doi.org/10.1111/1467-9906.00007>
- Jackson, K. (1985) *Crabgrass frontier: The suburbanization of the United States*. New York, NY: Oxford University Press.
- Jacobs, J.M. (1996) *Edge of empire: Postcolonialism and the city*. London, UK: Routledge.
- Jefferson, B. (2016) Broken windows policing and constructions of space and crime: Flatbush, Brooklyn. *Antipode*, 48, 1270–1291. Available from: <https://doi.org/10.1111/anti.12240>
- Jefferson, B. (2018) Predictable policing: predictive crime mapping and geographies of policing and race. *Annals of the American Association of Geographers*, 108, 1–16. Available from: <https://doi.org/10.1080/24694452.2017.1293500>
- Keeve, C. (2019) Cosmic assemblages and radical descents: Entering the [M] Archive. *Alienocene*, 5, 1–18. <https://alienocene.com/2019/06/19/cosmic-assemblages-and-radical-descents/>
- Kelley, R. (2002) *Freedom dreams: The black radical imagination*. Boston, MA: Beacon Press.
- Kitchin, R. (2014) The real-time city? Big data and smart urbanism. *GeoJournal*, 79, 1–14. Available from: <https://doi.org/10.1007/s10708-013-9516-8>
- Kitchin, R. (2017) Data-driven urbanism. In: Kitchin, R., Lauriault, T. & McArdle, G. (Eds.) *Data and the city*. London, UK: Routledge, pp. 44–56.
- L&I. (1958) *Living and improving*. City of Philadelphia, PA: Department of Licenses and Inspections.
- L&I. (2019) *2019–2021 strategic plan*. City of Philadelphia, PA: Department of Licenses and Inspections.
- Launius, S. & Boyce, G.A. (2021) More than metaphor: Settler colonialism, frontier logic, and the continuities of racialized dispossession in a southwest U.S. city. *Annals of the American Association of Geographers*, 111, 157–174. Available from: <https://doi.org/10.1080/24694452.2020.1750940>
- Le Guin, U. (2010 [1982]). *A non-euclidean view of California as a cold place to be*. Fifth Estate. Available at: <https://www.fifthestate.org/archive/382-spring-2010/non-euclidean-view-california-cold-place-1982/>
- Leszczynski, A. (2016) Speculative futures: Cities, data, and governance beyond smart urbanism. *Environment and Planning A: Economy and Space*, 48, 1691–1708. Available from: <https://doi.org/10.1177/0308518x16651445>

- Locke, J. (1982/1690) In: Cox, R. (Ed.) *Second Treatise of Government*. Wheeling, IL: Harlan Davidson Inc.
- Loyd, J. & Bonds, A. (2018) Where do black lives matter? Race, stigma, and place in Milwaukee, Wisconsin. *Sociological Review*, 66, 898–918. Available from: <https://doi.org/10.1177/0038026118778175>
- Mardock, L. (1998) *Predicting housing abandonment in Minneapolis' Central neighborhood: Creating an early warning system*. Minneapolis, MN: Center for Urban and Regional Affairs, University of Minnesota. Available at: <http://www.cura.umn.edu/publications/catalog/npcr-1089>
- Massey, D. (2013) Vocabularies of the economy. *Soundings*, 54, 9–22. Available from: <https://doi.org/10.3898/136266213807299023>
- McClintock, N. (2018) Urban agriculture, racial capitalism, and resistance in the settler-colonial city. *Geography Compass*, 12, 1–16. Available from: <https://doi.org/10.1111/gec3.12373>
- McKittrick, K. (2006) *Demonic grounds: Black women and the cartographies of struggle*. Minneapolis, MN: University of Minnesota Press.
- McKittrick, K. (2011) On plantations, prisons, and a black sense of place. *Social & Cultural Geography*, 12, 947–963. Available from: <https://doi.org/10.1080/14649365.2011.624280>
- McKittrick, K. (2013) Plantation futures. *Small Axe*, 17, 1–15. Available from: <https://doi.org/10.1215/07990537-2378892>
- McKittrick, K. (2016) Rebellion/invention/groove. *Small Axe*, 20, 79–91. <https://doi.org/10.1215/07990537-3481558>
- Melamed, J. (2015) Racial capitalism. *Critical Ethnic Studies*, 1, 76–85. Available from: <https://doi.org/10.5749/jcritethnstud.1.1.0076>
- Menkman, R. (2011) *The glitch moment(um)*. Amsterdam, Netherlands: Institute of Network Cultures.
- Mitchell, B. & Franco, J. (2018) *HOLC "redlining" maps: the persistent structure of segregation and economic inequality*. National Community Reinvestment Coalition.
- Moore, J. (2015) *Capitalism in the web of life: Ecology and the accumulation of capital*. New York, NY: Verso.
- Morckel, V. (2014) Predicting abandoned housing: Does the operational definition of abandonment matter? *Community Development*, 45, 121–133. Available from: <https://doi.org/10.1080/15575330.2014.892019>
- Noterman, E. (2020) Taking back vacant property. *Urban Geography*, 1–20. <https://doi.org/10.1080/02723638.2020.1743519>
- O'Sullivan, D., Bermann, L. & Thatcher, J. (2018) Spatiality, maps, and mathematics in critical human geography: Towards a repetition with difference. *Professional Geographer*, 70, 129–139. Available from: <https://doi.org/10.1080/00330124.2017.1326081>
- Pagano, M. & Bowman, A. (2000) *Vacant land in cities: An urban resource*. Washington, DC: The Brookings Institution: Center on Urban and Metropolitan Policy.
- Pearsall, H., Lucas, S. & Lenhardt, J. (2014) The contested nature of vacant land in Philadelphia and approaches for resolving competing objectives for redevelopment. *Cities*, 40, 163–174. Available from: <https://doi.org/10.1016/j.cities.2013.04.008>
- PHA (Philadelphia Housing Authority). (2015) *Sharswood blumberg neighborhood transformation plan*. Philadelphia Housing Authority. Available at: http://www.pha.phila.gov/media/163410/2015-blumberg_transformation_-_web23.pdf
- Phillips, R. (2015) Constructing a theory and practice of Black Quantum Futurism, part one. In: Phillips, R. (Ed.) *Black quantum futurism: Theory & practice*. Philadelphia, PA: The Afrofuturist Affair.
- Phillips, R. (2018a) Black Futurism & Technologies of Joy with Rasheedah Phillips (C. Herrmann, Interviewer). *Schloss – Post*, 15 August. Available at: <https://schloss-post.com/black-futurism-technologies-joy/>
- Phillips, R. (2018b) Placing time, timing space: Dismantling the master's map and clock. *The Funambulist*, (18), n.p. <https://thefunambulist.net/magazine/cartography-power/placing-time-timing-space-dismantling-masters-map-clock-rasheedah-phillips>
- Phillips, R. (2018c) *You are now here* [Conference presentation]. Speculative Geography Panel, Community Mapping and Civic Data Symposium, Philadelphia, PA. A program of the Price Lab for Digital Humanities and The Penn Program for Environmental Humanities. <https://vimeo.com/306420534>
- Phillips, R. (2020) Communal, quantum & Afrofutures: Time & memory in North Philly. In: Phillips, R. (Ed.) *Black quantum futurism space-time collapse II: Community futurisms*. (10–51). Philadelphia, PA: The Afrofuturist Affair.
- Phillips, R. & Ayewa, C. (2017) *Black quantum futurism: You are here [workshop]*. Philadelphia, PA: Philadelphia Assembled. Available at: http://phlassembled.net/futures/blog/you_are_now_here_with_black_quantum_futurism/
- Pickles, J. (2004) *A history of spaces: Cartographic reason, mapping and the geo-coded world*. London, UK: Routledge.
- PLB (Philadelphia Land Bank). (2019) *Strategic plan & performance report*. Philadelphia, PA: PLB.
- Poon, L. (2017) Using astronomy to fight urban blight. *CityLab.com*, 6 March. Available at: <https://www.citylab.com/life/2017/03/using-astronomy-to-fight-urban-blight/517911/>
- Porter, L. (2010) *Unlearning the colonial cultures of planning*. Farnham, UK: Ashgate Publishing.
- Pulido, L. (2016) Flint, environmental racism, and racial capitalism. *Capitalism Nature Socialism*, 27, 1–16. Available from: <https://doi.org/10.1080/10455752.2016.1213013>
- Reyes, J. (2015) Can this app predict vacancy? The city says it's the 'future of inspection'. *Technical.ly Philly*, 20 November. Available at: <http://technical.ly/philly/2015/11/20/vacant-property-prediction-app>
- Rose, C. (1994) *Property as Persuasion: Essays on the history, theory, and rhetoric of ownership*. Boulder, CO: Westview Press.
- Roth, R. (2009) The challenges of mapping complex indigenous spatiality: From abstract space to dwelling space. *Cultural Geographies*, 16, 207–227. Available from: <https://doi.org/10.1177/1474474008101517>
- Roy, A. (2017) Dis/possessive collectivism: Property and personhood at the city's end. *Geoforum*, 80, A1–A11. Available from: <https://doi.org/10.1016/j.geoforum.2016.12.012>
- Rugh, J. & Massey, D. (2010) Racial segregation and the American foreclosure crisis. *American Sociological Review*, 75, 629–651. Available from: <https://doi.org/10.1177/0003122410380868>
- Safransky, S. (2014) Greening the urban frontier: Race, property, and resettlement in Detroit. *Geoforum*, 56, 237–248. Available from: <https://doi.org/10.1016/j.geoforum.2014.06.003>

- Safransky, S. (2020) Geographies of algorithmic violence: Redlining the smart city. *International Journal of Urban and Regional Research*, 44, 200–218. Available from: <https://doi.org/10.1111/1468-2427.12833>
- Scott, J. (1998) *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven, CT: Yale University Press.
- Shelton, T. (2017) The urban geographical imagination in the age of Big Data. *Big Data & Society*, 4, 1–14. Available from: <https://doi.org/10.1177/2053951716665129>
- Shelton, T., Zook, M. & Wiig, A. (2015) The ‘actually existing smart city’. *Cambridge Journal of Regions, Economy and Society*, 8, 13–25. Available from: <https://doi.org/10.1093/cjres/rsu026>
- Sicotte, D. (2016) *From workshop to waste magnet: Environmental inequality in the Philadelphia region*. New Brunswick, NJ: Rutgers University Press.
- Smith, N. (1996) *The new urban frontier: Gentrification and the revanchist city*. London, UK: Routledge.
- Smith, N. (2008/1984) *Uneven development: Nature, capital, and the production of space*. Athens, GA: University of Georgia Press.
- Stivale, C. (1998) *The two-fold thought of Deleuze and Guattari: Intersections and animations*. New York, NY: The Guilford Press.
- Tsing, A. (2004) *Friction: An ethnography of global connection*. Princeton, NJ: Princeton University Press.
- Uncertain Commons (2013) *Speculate this!* Durham, NC: Duke University Press.
- Valverde, M. (2005) Taking ‘land use’ seriously: Toward an ontology of municipal law. *Law Text Culture*, 9, 34–59. Available at: <https://ro.uow.edu.au/ltc/vol9/iss1/3>
- Vélez, V. & Solórzano, D. (2018) Critical race cartographies: Exploring map-making as anti-racist praxis. In: DeCuir-Gunby, J., Chapman, T. & Schutz, P. (Eds.) *Understanding critical race research methods and methodologies*. New York, NY: Routledge, pp. 150–165.
- Wacquant, L. (2007) *Urban outcasts: A comparative sociology of advanced marginality*. Cambridge, UK: Polity.
- Woods, C. (2017) *Development drowned and reborn: The blues and bourbon restorations in post-Katrina New Orleans*. Athens, GA: University of Georgia Press.
- Woodward, K. (2016) The speculative geography of Orson Welles. *Cultural Geographies*, 23, 337–356. Available from: <https://doi.org/10.2307/26168729>
- Yang, Y. (2015) Philly’s millennial population growing fastest among 10 largest U.S. cities. *Philadelphia Magazine*. Available at: <http://www.phillymag.com/business/2015/11/02/philly-millennial-population>

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