Anti-intelligence:

A Marxist critique of the smart city

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"This work is dedicated to authority."

—Le Corbusier [i]

"Getting along is identical with adjustment to the apparatus…Individualistic rationality has developed into efficient compliance with the pregiven continuum of means and ends."

—Herbert Marcuse [ii]

"…what had been a corporate tagline became a governing project able to individuate a citizen and produce a global polity."

—Orit Halpern [iii]

"What could be more edifying than this equilibrium emerging from the Chaos of teeth and stomachs?"

—Gilles Châtelet [iv]

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The empire of intelligence

The smart city does not exist, but in many ways its arrival already feels inevitable. This is partly due to there being no end of charismatic, audacious projects which claim to be smart cities—Songdo International Business District in Incheon, South Korea, Hudson Yards in New York City, and the focus of this thesis, Sidewalk Labs' Quayside in Toronto—clamor for attention in urban and architectural discourse. Another reason may be that smartness itself seems to be irresistable to architects, urbanists, and designers—everything seems to be getting 'smart' all at once. In any case, smartness has gone mainstream, beginning to define a new urban mythopoeia of ubiquitous computing and total automated luxury. Outside of the design professions, municipal governments have begun their concomitant march towards a retrofitted smartness with or without corporate partners, all rushing to claim their share of a $1.6 trillion global smart city "marketplace".[v] The forms that these smart cities take vary wildly in scope (from bespoke cities to 'intelligent neighborhoods'), depth (from free public Wi-Fi to a complete technological overhaul of urban space), and intentionality (from ecological concerns, to economic expansion, or infrastructure modernization). Regardless, smartness is now the watchword, and the smart revolution apparently is to begin in urban space. Hundreds of smart cities, each with their own bespoke idea of what urban smartness is, are slowly appearing across the planet.

The smart city may be our likely future, but its story begins in the deep history of capitalist society. As a concept it has gone by many names, inherited many failed dreams, and been pieced together over long decades by urbanists, demagogues, corporations, luminaries, science fiction writers, sociologists, futurists, and technologists. The result is a slapdash concept, which takes pains to present itself as a seamless, universal utopia of connectivity and community. We can detect the smart city's perpetual state of incompletion in its appearance in market analysis, wherein there truly is no such 'thing' as a smart city as much as there is a synergistic application of 'smartness' to governance, health, transportation, and so on, all of which fall under

the 'smart city' heading.[vi] The exact number of these avenues of smartness, and which ones make the cut, varies between market analysts, trend forecasters, and providers, as well as other parties.

This thesis seeks, above all, to understand the smart city not as an object but as an ideological tendency, however fragmentary. It locates the smart city as an object of institutionalized ruling class desire and examines this desire's appearance in spatial and political contexts. In this framework, the smart city appears not as a foregone artifact-to-come or the exponential intensification of technology in urban space, but as an abstraction. This flies in the face of the typical accounts of smart cities, which largely treat it as an objective good (despite a growing amount of academic criticism).

But what is smartness? Answering this question will also lead directly to a definition of its counterfactual—the 'anti-intelligence' of the title. A quick note: for the purposes of this thesis, smartness and intelligence are interchangeable terms, though smartness may appear more as it is the commonly accepted 'marketing term'.

On the face of it, smartness and/or intelligence are ideologically conflated directly with technological acceleration. According to the accounting agency Deloitte, smartness appears (as if manifested out of nothing) when the pace of "technology adoption" accelerates to a suitable degree, "increasing rapidly as disruptive digital technologies have the potential to solve major metropolitan challenges".[vii] By this reading, intelligence is, more or less, simply the effects of technological acceleration in space and in the social order. It is an idealist tendency but one which, crucially, becomes materialized by virtue and in expression of that idealism, where it appears as technological artifacts. Intelligence also implies a power structure and the societal organization of labor, which are vitally necessary for it to be realized as technological artifacts.

Theodor Adorno and Max Horkheimer perceive this same connection between intelligence and technological artifice as a key tendency of the Enlightenment: "[k]nowledge, which is power, knows no limits, either in its enslavement of creation or

in its deference to worldly masters", anticipating Michel Foucault's famous work on the relationship between power and knowledge.[viii] I have some problems with this statement. To me, it is correct only if one accepts knowledge *qua* technology as an abstract. Looking at the specific difference between an abstracted human faculty for knowledge and its appearance in capitalism requires, in my view, admitting that knowledge has taken on a class dimension, and it is only the bourgeoisie who have the ability to apply it as they are the *owners of the means of producing and reproducing technological artifacts.*

Knowledge is not pure exploration or development in capitalism, but rather the adherence to and furthering of explicit codes of rationality, undertaken with the explicit intention of reproducing the bourgeoisie at the top of the class relation. Georg Lukács, in "Reification and the Consciousness of the Proletariat", cites Max Weber's statement: "[t]he modern capitalist concern is based inwardly above all on calculation…[with a] system of justice and an administration whose workings can be rationally calculated, at least in principle, according to fixed general laws, just as the probable performance of a machine can be calculated."[ix] Yet, modern capitalism thrives on irrationality and unevenness. Here calculation (or intelligence) comes into play, promising that irrationality can be overcome and ironed out, and the world remade into a playground for power and profit, according to the diktat of 'natural laws'. To be against intelligence is to be against a capitalist injunction to be rational. When it comes to lived experience and urban space, it is to be against the application of technology which views the urban substratum as an irrationality to be solved. It is against an ideology which sees everything as a nail and develops its requisite hammer to increasingly insane and labyrinthine heights of power. As Marx tells us, "[t]he ideas of the ruling class are in every epoch the ruling ideas".[x] In our epoch, these ruling ideas are presented as inevitable and sensible—as intelligence. This must be confronted.

Positionally declaring anti-intelligence is the announcement, first and foremost, to adapt what Jutta Weber calls a "demonology of technology" to space, cities, and urban life.[xi] The demonological approach prioritizes a critique of an explicitly capitalist technology, and notes that technology as we know it must be excoriated for its role in retrenching ruling class power. After this is accomplished, a reconstruction and reformulation of technoscience will hopefully characterize the second phase.

In order to ground this abstracted level of analysis, I will focus my attention on Toronto's Quayside. In Quayside, Sidewalk Labs has the opportunity to, in their own words, construct a "city from the internet up".[xii] This statement contains within it a forceful imposition to take the city on Sidewalk's terms, as an ontology of technological progress. By analyzing Sidewalk's intentionality, we can arrive at the true, abstract form of the smart city: the most recent fever dream in the long night of infinite control. The smart city is the creeping reality of a wish in the mind of the ruling class.

This thesis (and moreso, myself!) do not claim to have any privileged insight on Toronto's local politics or history beyond what can be learned from research and too-brief visits. I have to admit that writing about Toronto from Brooklyn will always only ever be writing about a half-imagined and fragmentary place. I also need to apologize here for a less-than-total engagement with the immense amount of brilliant work—try as I might, there is always simply too much to read, to digest, to think about. This thesis is incredibly indebted to the inspiring work of so many activists, writers, and others who oppose Sidewalk's actions in Quayside. Any novel contributions I may have enters into a discursive field which has long been shepherded by very capable people.

The speed of *whatever* is happening in Quayside is both too fast—Medium posts, interviews, and articles come at a breakneck pace—and too slow: the long-awaited Master Innovation and Development Plan which Sidewalk will submit in order to actually get the go-ahead for the Quayside project remains set for an ambiguous spring 2019 release date. Today is Sunday, April 28, 2019. The plan may be released either

tomorrow or in a month. There is no way of knowing, and as such, this thesis must be necessarily limited to what is available right now.

Thankfully, the sliver of what we do know is more than enough to reveal Sidewalk's intentions and the organizational, ideological, economic, spatial, and technological apparatus it is building to carry these out. It is also enough to indict Sidewalk for what it is: a covert operation on the part of the ruling class to seize further power.

Reproduction of the smart city

Let's look at a description of a day in the life in a fully networked, generic smart city:

> "It is the year 2027 and your day is full. As you finish your coffee and start to organize your desk to leave work, your boss tells you that you need to stay late. A quick moment of panic sets in, but you push past it and take action. In order to pick your son up from school you call an autonomous car with a quick swipe of your thumb and the service sends his smartphone the Quick Response (QR) code to access the car moments later. As you settle back into your chair, your son James walks out of school and into the autonomous vehicle school loading zone to find a shiny black autonomous car awaiting him with the air conditioning at his profile's preferred setting. Once you begin putting the finishing touches on the extra project, you half-consciously check in on James' journey via his smartphone's Global Positioning System (GPS) and see that he is leaving the food stop you approved in order to avoid a stern talking to by your spouse. The autonomous car app shows you that James' car was rerouted to avoid congestion on the highway and he should arrive at home shortly. Meanwhile, at home, the house smart systems kick into high gear in anticipation of James' arrival and change the temperature to make sure the air conditioning is used only when needed. With a dull buzz, your smartphone informs you that your son is picked up, fed, and comfortably sitting at home."[xiii]

The first thing one may notice about this romance of this smart city is how *boring* it is. Sure, this is in part because it isn't meant to illustrate everyday life in the smart city, but appears in a paper discussing security and privacy concerns (such as the spatial equivalent of a real-life DdoS attack) in a fully connected urban area (dutifully, the paper goes on to warn of the dangers of location services and the monetization of behavioral data). As a captivating representation of urban life, it leaves much to be desired; beyond being boring, it's hard to see what has changed instead of just being *intensified*.

Of course, we can't judge this brief narrative too harshly, but it is worth noting that this archetypical smart city, which Sidewalk Labs describes as the "fourth revolution in urban technology" seems here to not be very revolutionary at all.[xiv] In fact, this piece presents the smart city as a *reactionary*. All the typical terrors of modern life are still here in droves: 'you' are working late, and your engagement with smart services effectively makes the city a vast childcare machine for a nuclear family-unit. This focus is telling. What kind of revolution is this?

Obviously, no revolution has taken place at all. The passage above makes 'you' its main character, but 'you' are performing the tasks of the household; one may imagine 'you' are coded feminine, for ease of discussion. The choice of the writers to focus not on the smart city's public sphere applications, but on the *private* sphere, begs a discussion on the role of the home and housework, which can possibly shine a light on the private dimensionality of this proposed fourth revolution.

Alexandra Kollontai, writing on the nature of housework, remarks that in capitalism production is separated the home and exists only as an activity undertaken on an industrial scale. Women to likewise free join the workforce, thus disbanding the family as a distinctive socio-economic unit—under capitalism, "the family no longer produces; it only consumes".[xv] Regardless, the family as a locus of control is retrenched, and remains a significant figure of social life. As Shulamith Firestone remarks in *The Dialectic of Sex*, "the heart of women's oppression is her childbearing and childrearing

roles"—though reproduction has left the home, it remains behind closed doors.[xvi] The above smart city anecdote diffuses reproduction of the family throughout the entire urban field but stops just short of actually reimagining the structure of reproductive work. This is intentional. Silvia Federici points out that "the immense amount of paid and unpaid domestic work done by women in the home is what keeps the world moving", and the continuous unpaid 'primitive' or 'original accumulation' provided in the home is singularly responsible for nothing less than the continuous social (if not biological) reproduction of capitalism itself.[xvii] It seems that, however planetary in scale the network 'you' summon to pick your son up from school, feed him, and deposit him at home, it is still left to 'you' to coordinate those activities, and the home itself is still privately organized and operated in the capitalist manner. The fourth urban revolution does not include (and in fact militates against) the 'Grand Domestic Revolution' seems to have gone up in smoke.[xviii] 'You' may ask then, what is the nature of this smart revolution? Has anything constitutively changed?

An extremely simplified spatial description of the city could describe it as simply an agglomeration of private property. One such variant of this private property is the *home*—a specific type of commodity which enables the *reproduction* of labor. The word reproduction points immediately to the historically feminist concerns surrounding the home—a major blind spot for the Euro-American left. Sylvia Federici and Nicole Cox commented on the consistent failure of leftist struggle to understand the labor of reproduction in 1975: "What has been neither clear nor assumed by the organizations of the working class movement is that precisely through the wage has the exploitation of the non-wage laborer been organized. This exploitation has been even more effective because the lack of a wage hid it . . . *where women are concerned, their labor appears to be a personal service outside of capital*".[xix] A thorough analysis of the city must center the role of both property, and the invisible non-waged labor which drives it. These together compose a contradictory whole.

A full analysis of the role of property in the city is in some sense beyond the scope of this (or any) master's thesis—however, chapter 2 will develop these beginner's notes on

property into a larger conversation about the appearance of capitalist laws of value within the smart city. At this point, however, it is helpful to highlight my own position, which could perhaps be called a feminist critique of the capitalist city. For this it is helpful to read Marx through Shulamith Firestone, who claims that "Marxian analysis…was insufficient: it did not dig deep enough to the psychosexual roots of class".[xx] She continues—not past Marx but through him—that "Marx was on to something more profound than he knew when he observed that the family contained within itself in embryo all the antagonisms that later develop on a wide scale within the society and the state".[xxi] This is the identity of the home in capitalism: a piece of property which hosts the family, setting up a double bind of repressive control with origins in both the sphere of economics and the forcibly excluded "psychosexual" sphere.

The private home demands female labor, as Delores Hayden points out, becoming the "stage set for the effective sexual division of labor".[xxii] Henri Lefebvre claims this sexual division sits at the heart of the capitalist state's control of production and reproduction, a tendency which he calls "genitality" to refer to "the family, the family unit, and biological reproduction".[xxiii] Spaces of reproduction, despite their seemingly apolitical existence, quietly embody what Helen Hester calls a "domestic realism" in which there appears to be no alternative—thus encoding the sexual division of labor as an unassailable facet of the quotidian, implied in the idea of property itself.[xxiv] Property and its oppressive presuppositions are inescapable in an urban context; to talk about the character of the city without clearly delineating that oppression begins with the private brutality of extracted reproductive labor is to preclude any actual analysis from the start.

To come back around to the above smart city vignette, there is an explicit drive to smooth out (or over) the labor of reproduction sitting atop a reactionary removal of labor in general. Your boss tells 'you' to stay late, and 'you' are forced to accept. One imagines that outside your office window, other bosses are telling other 'you's to also stay late, and they also sigh and call autonomous taxis for their children. The smart

city's autonomous networks then silently sweep in to facilitate your long hours, performing functions which in the past had required many thousands of people to enact and relied on social relations to pull off. Regardless it is clear that within this smart idyll, that the present state of things has not been abolished—if anything, it has been shored up and further retrenched. In the language of Antonio Gramsci, the smart city constitutes a 'war of position'—the hegemonic powers of the ruling class, secure in their dominance, now seek to fortify that power by extending themselves into new social frontiers. It is this epistemic colonization, or "smart-washing", to borrow Bianca Wylie's insightful term, that is truly the focus of this thesis.[xxv] Smart-washing reaches well beyond Quayside, or even the smart city; it is the modus of bourgeois class consciousness at this level of capitalist development, and contains within it ideas about everyday life, labor, urban space, and technochauvinistic historicity.

If you follow the prevailing bourgeois logic, 'smartness' is some *thing* which can be applied to already existing aspects of life; for example, Grand View Research Inc.'s market analysis points to the development of smart education, smart governance, smart buildings, smart mobility, smart healthcare, and smart utilities. Quayside, as a holistic project which aims to produce a smart *city*, represents a considerable development of both smartness as an applicable *thing*. This smartness-thing is, to a degree, a subject without an object; it is also a particular focus of critique for people resisting Sidewalk's advances in Toronto. But if we are all against the smart city—and unless you're a capitalist, you should be—what is it we are arguing for? Is it the city as we currently understand it?

To quickly answer: no, hopefully not. This may seem surprising on the face of it, likely due to my own failure to explain what I mean by a city. Before continuing with the rest of this thesis, it's helpful to lock down a specific definition for the city. Too many comments on cities and urban life do not begin from this position and thus allow the substrate of critique to be defined by others—sociologists, technologists, etcetera. Of course, a complete definition is not possible, either within this thesis or anywhere else. What is possible, and moreover necessary, is to adapt a particular positional stance with

respect to the city as it appears at our present level of capitalist development. Therefore, I have no great love for cities, as I have no love for capitalism. That said, this is not a problem with the city so much as it is an issue to be taken up with capital itself.

The specific difference of the city under capitalism is that it, like everything else, does not exist independently of capitalist logic. This may seem like a tautology; what I mean to say here is that though cities pre-exist capitalism, they have been swallowed entirely into a market schema of commoditization and exploitation in the service of surplus value (more to this point in chapter 4). Cities are in the first instance bourgeois constructs, constructed by individual members of the ruling class capitalists and bourgeoisie, governed and administered by the same, and altogether oriented towards the absolute continuation of their domination and brutality. This is acutely visible in Quayside, as Sidewalk's immense wealth and technological capacity has allowed it enormous leeway in constructing urban space and systems custom built for the perpetuation of the reign of capital—but Quayside, as well as any other smart city, is *a variation on the universal form of the city*, and the form is rotten to its core. Though the application of smartness may represent the latest in the centuries-old project to maximize the capacities of the bourgeois class to oppress, that oppression is likewise as old as its existence as a class, and can be felt in every single city, every single urban space, every single structure, no matter how banal or inconsequential it may seem. The world in which we inhabit was constructed by the oppressors. No amount of pushing at this oppression, of opening a small space within it, or of evoking a baseless claim of a 'right to the city' will change this fact. As long as there are cities, the bourgeois remain in control.

This all seems very dark. In fact, it may seem absurd, especially in our time of an 'urban renaissance' in Euro-American countries, accompanied by contemporary alleluias that the city can be a home of social justice, emancipation, or 'community' (Sidewalk is especially guilty of this last one in particular). Many people probably have an affection for cities they are from or they currently live in. So how can my claim—that the city is a weapon of the bourgeois class—truly hold? The problem runs deeper to the existence of

property itself. The feminist critique which I attempted to summarize above excoriates one valence of the political character of property. But property conditions a multitude of social relations which embed capitalism's venal cruelty into the very substrate of everyday life and especially gives it explicit form in the city. This was evident to Karl Marx (and Friedrich Engels, in *The Housing Question*), who attacks the divide between town and country to be "[t]he greatest division of material and mental labor".[xxvi] "The existence of the town implies," Marx explains, "at the same time, the necessity of administration, police, taxes, etc.; in short, of the municipality, and thus of politics in general. Here first became manifest the division of the population into two great classes, which is directly based on the division of labor and on the instruments of production".[xxvii] It is once again important to note that this does not mean Marx, Engels, or I are against the city in general, but that what is being discussed here is the *specific character* of the city in capitalism. When capitalism arrived on the scene, the geomorphology of human existence was taken in as raw material and remade along capitalist lines, splitting the world into two neat categories—urban and rural—which likewise became the foundation of a repressive apparatus.[xxviii]

Thesis statement & positionality

The smart city is being sold to the public as an innovative 'force'. To explicate, this force presents itself as a *relatively holistic ideological drive to install technological progress as an imperative* across a range of scales and spheres. Put another way, it is the sociospatial aspects of Meredith Broussard's concept of *technochauvinism*, or the belief that "tech is always the solution".[xxix] Broussard elaborates further: technochauvinism contains within it "the notion that computers are more "objective" or "unbiased" because they distill questions and answers down to mathematical evaluation; and an unwavering faith that if the world just used more computers, and used them properly, social problems would disappear and we'd create a digitally enabled utopia".[xxx] All of these are, to a degree present within the smart city in general and Quayside in particular, and this belief—that all of social existence can be captured and assessed, that technological

progress constitutes a permanent revolution propelling history along—appears embedded in the smart city but throughout the ideological raiment of the capitalist class altogether.

The technochauvinist drive is present wherever smartness gains a spatial footprint; for example, in Amazon's recent barnstorming search for a new location for its second headquarters, Nick Tabor explains that it was able to leverage the *possibility* of smart development in order to gain access to data extracted from cities and residents it may not have been able to otherwise.[xxxi] While shockingly brazen as an isolated case, Amazon's activities (and the capitulation of municipal governments) actually makes a good deal of sense when taken as yet another instance of the ideological drive of technocapital. Reading the smart city as a technochauvinist element does not to obscure the effects it does and will continue to have at the level of everyday life, but is a heuristic which provides these effects with order and indexes them to more abstract concerns. The more concrete narratives about the smart city—from technology providers, 'smart urbanists', and even some resisters—tend to bury ideological content as much as possible, finding technological novelty enough to promote or critique.

Regardless, with smartness, it is important to disabuse ourselves of specificity at a certain stage. This is not because the particular is not crucial, or because mounting resistance to local colonizing attempts on the part of smartness are misguided or not necessary. The struggles in Long Island City against Amazon's monstrous invasion, and the continuing fight against Alphabet in Toronto (#BlockSidewalk!) are absolutely vital. These fights have been working out problems by encountering them in practice. There are many other examples of opposition to technochauvinist capitalism—perhaps too many to count, but all doing good work. But at the theoretical level, the fight against technochauvinism remains disorganized, fractured and fighting against damage against local conditions or a certain type of abuse (facial recognition, data monetization, exploitation, technogovernance, etc. There are groups that oppose corporate takeover, that square off against the real estate schemes which buttress city construction, that combat the loss of privacy and the rise of surveillance across the entire world, but these

are all isolated by distance. Moreover, the enemy seems unstoppable: the arrival of smartness, expressed as technochauvinist trouble, seems to be already foreclosed. Smartness is appearing, and the stream of new project announcements and technologies shows no sign of stopping. At this advanced stage in local resistance, a recognition that no struggle takes place in a vacuum may be necessary in order to mount a wider attack. Local struggles, considerations, and tactics may possibly be cohered into a wider counter-ideological strategy which attacks smartness at its own level of realization—after all, if the corporate actors that are working in this sphere are transnational, at the behest of a system which is truly global. In summation, the aim of this thesis is to begin to take the lessons of these struggles and make some preliminary notes towards a wider criticism of smartness as an ideology; to identify and predict the urban and concrete manifestations of technochauvinism; and to sketch their historical contours.

I define my own attitude towards technology with three statements, the first from Georg Lukács, the second from Alain Badiou, and the third from Cedric J. Robinson. Lukács proclaims, in his 1967 introduction and reassessment of *History and Class Consciousness*, that he had "never succumbed to the error that I have often noticed in workers and petty-bourgeois intellectuals who despite everything *could never free themselves entirely from their awe of the capitalist world*" [emphasis mine].[xxxii] When discussing the smart city, it is essential to not take partisan claims at face value, to not indulge in a fetishization of technoscientific novelty. As an urbanist, this can prove difficult, as a study of the city is oftentimes coextensive with a study of urban technologies and the organization of life which correspond to them: plumbing, electricity, the car, and countless others. Lukács' statement suggests that blindly and blithely centering these technological "quiddities", as paradigm-defining moments isolable from the progressive march of history, can be dangerous. I intend to avoid the technofetishism present in accounts like Adam Greenfield's *Against the Smart City*, which despite its well-reasoned critiques of smart urbanism, finds itself bemoaning not the arrival of all-encompassing urban technology but the insufficient elaboration or speed by which it is appearing. When Greenfield resignedly sighs that "so much of this

language focuses on what technologies will or can accomplish, rather than what they are actually observed to do, and why the full flowering of the smart city is situated in a time after we're all dead or in our decrepitude".[xxxiii] His is not an isolated case— Lakshmi Priya Rejendran also has called for smart cities to slow down "for citizens' sake".[xxxiv] But why? Is it really much better to adapt to debilitation than to experience it all at once?

Badiou hammers on the same point as Lukács, castigating theorists who are "fascinated by the technological changes and continuous expansion of capitalism over the last thirty years" to the extent that they are made "dupes of the dominant ideology…[imagining] they are witnessing a prodigious sequence of History".[xxxv] I agree with Badiou's corrective: despite surface glitz, "contemporary capitalism possesses all the features of classical capitalism. It is strictly in keeping with what is to be expected of it when its logic is not counteracted…today's world is exactly the one which, in a brilliant anticipation, a kind of true science fiction, Marx heralded as the full unfolding of the irrational and, in truth, monstrous potentialities of capitalism".[xxxvi] None of what we are seeing today is novel when the historical and political economic conditions of its existence are considered.

Finally, I agree with Cedric J. Robinson, who in *Black Marxism* asserts "Marxism was (and remains) a superior grammar for synthesizing the degradation of labor with the growing destabilization of capitalist production and accelerating technological development; the increasing resort to state coercion mediated by bureaucratic rationalism; and the strangulation of whole regions". Though my critique begins in Quayside, nothing is divorced from capitalism's epochal domination of the entire world. To pretend that Quayside or Sidewalk exist on their own is to limit this critique so much as to be completely useless contemplation.

As I have mentioned, in this thesis I will focus my attention specifically on Quayside, a neighborhood in Toronto, Ontario, and the prospective site of smart city project occurring under the auspices of Sidewalk Labs, a subsidiary of Alphabet. In my view,

Sidewalk Toronto (the name given to Sidewalk's local activities, distinguishing from its smart city projects in New York and elsewhere), represents a nearly perfect, archetypical example of the generic idea of the smart city. This is despite the fact that ground has yet to be broken and, in fact, the entire project is now somewhat in limbo. This thesis is written with 'what we have', beginning with an analysis of what I view as the most substantial piece of writing to date to come from a smart city provider—Sidewalk's response to Waterfront Toronto's Request for Proposals for the redevelopment of Quayside—and incorporating other publications and information when necessary.

The totality of Sidewalk's vision for Quayside makes it what I would call a 'second order' smart city, in which the concepts which have been and continue to be developed constitute a 'first phase'. These concepts generally have appeared (and will continue to appear) in retrofitting attempts at smartness, in which an existing urban area is 'treated' with smart upgrades, in a process that is relatively simplistic and considers success as the incremental improvement of existing networks and infrastructure which coexist alongside other infrastructures which have yet and may never be 'made smart'. For an example, consider New York City's LinkNYC kiosks, also developed by Sidewalk Labs. These "futuristic monoliths" constitute a 'smart' network which replaced public phones and are clearly meant to be seen as an overall upgrade of the network. However, their operational space remains limited. By distinction, in Quayside there is no single element untouched by the technochauvinistic injection of smartness—as then-Alphabet executive chairman Eric Schmidt said back in 2017, the mindset behind Quayside is what Sidewalk can do if "someone would just give us a city and put us in charge".[xxxvii] In addition, Sidewalk looks to go well beyond a relationship with the urban citizen that is transactional (for example, the kiosks offer free calls and internet access, and extract surveillance data) to one which directly intervenes and shapes urban life—all aspects of the Quayside project, from the paving stones to the home, is outside Sidewalk's purview. Appending the distinction 'second order' notes this fact: the balance has

shifted from the city to smartness as such. It is not the city which is smart, but the smartness which is urban.

Method

My method within this thesis is, as the subtitle indicates, Marxist. This doesn't mean I have a blind adherence to Marx's writings, per se, but that I attempt to use a materialist, as opposed to idealist, dialectic to the best of my ability over the course of my investigation. To put it simply, I ascribe to the view of reality put forward by hhistorical materialism. In the words of J. Moufawad-Paul, "is not a mere quirk of the humanities based on some academic's thoughts about reality translated into an intriguing terminological set".[xxxviii] Dialectics unifies method and reality, while a non-dialectical 'critique' could employ a method which has little to no bearing on the actual existence of things. This 'critique' predominates in urbanism, which deals with a preponderance of concepts and ontological arrangements which it invariably treats as *things* even when they clearly are not. Is there a 'thing-ness' to a city? What are its limits? Urban sociology's continued insistence on disciplinary coherency is has resulted in its concepts remaining "untouched and unaltered so that thought remains contemplative and fails to become practical".[xxxix]

For example: A good amount of this thesis is interested in combatting what is often called an 'ontology of becoming'. This worldview can be thought of as an update or positivism with a twist, in which the ideas of Auguste Comte (who developed the phrase originally in the era of industrialism) are given new life in capitalism's supposedly "post-industrial" phase. Often, this means that the idea of progress or change is taken to be a positive force in its own right (with obvious teleological and technological reasoning) via a metaphysical appeal to *natura naturans*, or nature 'for itself'. A dialectical approach helpfully skewers the ontology of becoming as a hackneyed *thought process* with no bearing on reality. On its own, the idea that cities grow, that they function as ecosystems, that concepts can be selectively adopted at will, may seem harmless; however, they arrest thought at pure contemplation and are thus

useless for an urbanism which investigates about real cities and their material conditions. Too much theory does exactly this, especially (in my experience) when it comes to technology, urbanism, architecture, aesthetics, and communication, topics which this thesis engages with a great deal. This concept will be elaborated further later, but for the time being it is essential for me to state that nothing made by humans blooms or grows; everything is produced by human labor and is afterwards (hopefully!) maintained—which is labor in its own right. The analogical argument which refits concepts from the natural world in the service of a technochauvinist undertaking like the smart city is undertaken in order that labor and laborers fade from view as much as possible. Gilles Châtelet notes the political dimension of this ecological fetishization: "[w]e can appreciate the full force of the cretinizing seduction of the 'chaotizing' and of the 'self-organizing': a massive force like that of miracles…that feeds on the decline of the thinking of the political as such".[xl]

Technology in general, as well as the specific example of the smart city, likewise rely on their presentation as naturally progressive, as evolutionary concepts, or even as an emergent order out of chaos. This can be detected in the way that concepts are presented as fully realized, obscuring the provisional and ongoing development through time which undergirds them—for example, a technological artifact is almost always presented as novel, finished, and self-contained, and obscures its provenance both materially (dependent on a global network of supply chains and extraction) and in terms of research (reliant on technoscientific labor). However, this mindset is not just limited to the world of technology; it is indicative of a metaphysical, strictly contemplative worldview. Mao Tse-Tung wrote in *On Contradiction* that "the metaphysical or vulgar evolutionist world outlook sees things as isolated, static and one-sided…*development arises from the contradictions inside a thing*…" [emphasis mine].[xli] An exploration of a thing's historical development, which is necessarily riven with contradictions (nothing was ever seamless or painless) gives over to a fuller understanding of its present form. The evolutionary tendency, in which the smart city simply appears after a sufficiently high level of technological application, mistakes

history for a constant procedure of advancement. It is history as a still life. Alternatively, a dialectical history of the smart city is one that foregrounds the laws of motion behind it, that embraces the contradictions within it, instead of focusing on the simplifications of façades, which insist that everything is always a static object or one in a linear process of 'becoming'.

Literature review

The term 'smart city' has come to occupy the spotlight in both urban sociology and more mainstream urban discourse, despite its troubled ambiguity. The general concept at its most basic—in which information and communications technologies are applied to urban situations—has been quietly growing since W.H. Dutton's "Wired cities: shaping future communication" essay published in 1987.[xlii] Though the lineage from wired to smart is tortured, and has resulted in speciation (cyber cities, digital cities, knowledge-based cities), this thesis contends that these varied concepts are all nevertheless governed by shared impulses that they can be assessed as a whole, under an umbrella 'smart city' label. At the same time, my intention is to redirect focus from a history of smart cities to the ways in which that history can be understood as constitutive of smart cities today (within the past decade, for the most part). Additionally, the label will be taken to include usage of the term (and similar) in its usage for marketing purposes. This all comes with the self-reflexive caveat that the implicit defensiveness of the phrase, tending towards default "positive and rather uncritical stance towards urban development", is not unnoticed, but rather celebrated in all its ingrained contradiction.[xliii] Douglas Hollands' rhetorical question "Which city, by definition, does not want to be smart, creative and cultural?" remains a crucial point of departure for my discursive approach, which focuses on the sociotechnical, ideological, and juridical existence of the smart city *qua* the smart city.[xliv] Assuming smartness to function as a teleology clarifies the relationship between cities at varying levels and distributed typologies of smartness, as well as relating them to history.

Kitchin's definition of the smart city considers the evolutionary nature of the concept: it refers to urban spaces which are characterized by "pervasive and ubiquitous computing and digitally instrumented devices built into the very fabric of urban environments…that are used to monitor, manage and regulate city flows and processes…used by many urban citizens to engage with and navigate the city which themselves produce data".[xlv] In addition, and chiefly of interest within this thesis, "the notion of a 'smart city' is seen to refer more broadly to the *development of a knowledge economy within a city-region*. From this perspective, a smart city is one whose economy and governance is being driven by innovation, creativity and entrepreneurship, enacted by smart people".[xlvi] There is a political, spatial, juridical, and technocratic argument which is latently being made—which, I argue, is caught up and/or discarded in a slew of semantic tricks and micro-level empiricism—that fails to place the smart city within a larger dialectical consideration of socioeconomic relations. In addition, Kitchin notes that smart cities orient themselves around "serving global, mobile capital and stationary ordinary citizens; attracting and retaining an elite creative class and serving other classes; and top-down, corporatized, centralized development and bottom-up, grassroots, decentralized and diffuse approaches".[xlvii]

In addition, smart cities are often spoken of as 'economic engines', just as cities are. In this sense, smartness is thrown around like a multiplier, improving economic performance over and above traditional urbanism. If this is true, I argue, significantly obscures the particular economic attitude of the smart city, which comports itself quite differently from cities as they are traditionally conceived. The smart city is further characterized by an inversion of the typical relationship of cities and market entities; whereas in normal cities these entities are valuable for their contribution to the city's overall wealth, they remain a constitutive part of the city overall. In the smart city the market entities rise to the level of a municipal power, either through public-private partnerships or wholesale 'projects' which give some level of direct control to an entity in order to effect rapid development and innovation, born from a general social shift from managerial to entrepreneurial urban governance, in which the city a smart city can

be "characterized by 'a vibrant economy where businesses want to locate and expand'".[xlviii]

Bianca Wylie (the "Jane Jacobs of the smart city", so-called) warns the smart city is a Trojan horse, in which "private companies…stride into town promising better urban governance, but are really there to sell software and monetize citizen data".[xlix] She has gone further in her condemnation, correctly claiming that "smart cities are largely an invention of the private sector—an effort to create a market within government".[l] She is demonstrably correct: one may view the smart city as an *impulse* towards utopia—a utopia of technocratic control in the service of the creation of corporate platforms or ecosystems, the 'final frontier' of usable technology, or "the physical-world equivalent of a digital platform".[li] The stated aim of introducing "hardware and software into the planning and delivery of public services" masquerades as smart urbanism, but this is in fact fictitious: "cloaking this work in urbanism," Wylie advises, "is a betrayal of motive".[lii] Despite smart cities existing in name, they do not yet in practice, and will not for some time; at the current stage the undergirding technologies which, it is intended, will one day form the backbone of smart urbanism are still only now being developed and tested. The smart city is a misnomer (which Wylie brilliantly refers to as "smart-washing") and cannot be assessed as an urban condition but rather as a question of technology *as applied to* governance.[liii] It is clear already that governance will be suborned to technological rollout across the built environment; however, by using the particular instance of the smart city, these changes can be investigated and viewed concretely. Any digital rights or infrastructure policy or legislation necessarily follows from the already underway invasion of technological realities into the sphere of governance. Design and experiential speculation, where the bulk of public discussion of the smart city currently lies, is at best irrelevant futurology and at worst a tactic to draw attention away from the much headier considerations of administering not just the smart city but overseeing its construction.

Beyond these preliminary statements, which are purposely ambiguous as to the material conditions and empirical factors of any smart urbanism, I am wary of saying

more with respect to a definition of smartness is or may look like. Part of this is due to the obvious ideological work the phrase does for itself, containing both an argument of depoliticization and of historicization: depoliticized as there is no specific content to the term which expresses a program, and historicized as at the same time, all previous urban conditions become expressed as prehistory— 'before smart'. As architect Rem Koolhaas notes, a "transfer of authority has been achieved in a clever way by calling their city smart – and by calling it smart, our city is condemned to being stupid".[liv] To me, this is less a spatial argument ('some cities are smart, others aren't') than a temporal one ('all cities will become smart in time').

It is imperative that the smart city swaps out citizenship as commonly understood for a new principle of free 'participation', in which the smart city is a mere backdrop to an entirely solipsistic pageant in which social action is strictly curtailed. Take, for example, the trend in the smart city not towards reinvigorated public transit, as one may hope, but instead towards increasing isolation in the form of private, self-driving vehicles.[lv] *Anomie* finds its solution not in the recreation of cultural morality but in the elimination of all unnecessary social interaction whatsoever that isn't related to the market. Spatial categories such as contingency, proximity, transit, &c. are recast as luxuries—"location is no longer the key to economic success because '…the three most important things now affecting the future prosperity and development of human communities are technology, technology, and technology'".[lvi]

Autonomization promotes atomization. Social relations become mediated and sieved through a technological screen which alienates them and gives them an 'objecthood'. This allows for cultural organization to be reconsidered at a higher level—that of the technical, in which alienation stands in for culture in total. This is made perfectly clear in the statement that "a smart city's security should *no longer be conceptualized along traditional norms of physical security*, but instead it should build off of current research surrounding cyber security and the Internet of Things" [italics mine].[lvii]

Consider another smart city story, this time of disastrous collapse:

> "When the power went out, at 1 p.m., hundreds of subway cars carrying thousands of passengers who had decided to risk the ride suddenly found themselves stuck between stations; one group that got trapped in an L train under the East River had to walk more than half a mile underground to get to First Avenue, using the light of their dying cell phones to navigate. Many of them said later they were expecting another threat — a bomb, a gas attack — figuring whatever sinister group was behind all this was sophisticated enough to coordinate that, too…Aboveground, traffic lights were out, so anyone willing to drive a car was crawling slowly through the snow. Many of the stranded were worried that the hackers had targeted their bank accounts, spiriting away their savings to some untraceable, block-chain account, possibly to fund future attacks — which were surely coming, according to the panicked chatter on the street. But all the ATMs were down, which made it hard to check. Credit-card readers didn't work, and neither did Apple Pay, so anyone who'd gone cashless couldn't buy anything. Stores around the city closed, and sporadic bouts of looting cropped up, along with rumors exaggerating the extent of it and the violence associated with it. Wall Street kept trading on backup generators, although most people wished it hadn't: Within minutes of the outage, the Dow had plunged."[lviii]

The scenario depicted here by Reeves Wiedeman for *New York Magazine* appears to be a good deal more realistic than the previous story, in which the connected city appears as a liminal space of effortless leisure. Among the proponents of the smart city, there is a growing tendency to discuss, if perhaps in a speculative way, "security challenges" and the admittedly "abundant opportunities for security corruption within a smart city framework".[lix] The reason is obvious: the smart city is essentially unable to be distilled in its essence as apart from the collection and collation of enormous sets of data—most banal (consider . It helps to bear in mind that though security as such has a clear economic dimension. Wiedeman accurately notes that even a localized cyberattack on a contemporary city would have immediate effects on the stock market, "trading on

backup generators". Even today, news of a data breach specific to a single company or platform entails a depression in stock price.[lx] One imagines a world in which a smart city or perhaps, some universal software is 'hacked'—beyond the immediately pressing security and privacy issues, economic crisis may not be far behind. The blowback entailed would be far-reaching, to say the least, especially considering that smart city technology and services are anticipated to reach a value of $2.57 trillion by 2025—to say nothing of the constitutive technologies which may not be labeled as 'smart city' industries.[lxi]

Power's focus is no longer domination—but we've known that for a while now, beginning with Foucault. But now, we have moved beyond even biopower, the control society, etc. to a scenario in which the only security worthy of the name is the perpetuation of perpetuation. Technochauvinism dictates that sufficient progress will engineer away societies problems, burying problems by claiming they are only in the past, imposing a false, machinic *aufheben*. Administration itself becomes a perpetual motion machine, a race to see who can stay with the trouble. And currently, the technologists and their corporations are winning, outstripping the state but also a left resistance to both. As such, (social, moral) norms are replaced by a platform of possibility. In an urban sense, this appears in the ideation of the 'city as a service'—morality is passé (because it has no value!) and instead, we are beseeched to open up to an unlimited range of possibilities, within a sandbox-field of actions that is sharply delimited. In another sense, norms are scrapped in favor of a social contract which takes the form of a Terms of Service agreement or subscription service with either a municipal or private entity, or perhaps a combination of the two. Cultural holisticism is transcended in favor of a technical approach that streamlines and isolates inputs (total personal extensibility and freedom) and aggregates outputs (constructing anticipatory networks and ceaselessly investing in security). The shadowy metabolism that turns technological primacy into social domination can be closed like a defunct subway tunnel and abandoned—technology *becomes* and *overcomes* society.

The smart city firmly begins with the conception that the city can and should function as a service. This simple statement implies efficiency as the *modus operandi*. Orit Halpern et al. notes, that this founding logic begins from a "smartness mandate".[lxii] Halpern refers to then-chair of IBM Sam Palmisano's 2008 'A Smarter Planet' speech, where Palmisano makes the case that the smart city's enabling of "a mode of automated, and seemingly apolitical, decision-making" would not just be an end in itself, but "would guarantee the survival of the human species in the face of pressing environmental challenges".[lxiii] Basically, Palmisano argues that the saviors of humanity and the planet will be the ruling class, operating through smart technology to alter the world through the projection of will and cash largesse. This ecological dimension appears throughout smart discourse. For another example, see the recent article on The We Company (of WeWork, WeLive, and WeGrow fame) and their new "future cities" gambit which ends by posing the question "Can two futurists, equipped with the resources of a $47 billion company, actually help solve issues posed by urbanization and climate change?"[lxiv] Of course, the answer is no. But alternative questions have not yet been fully formulated.

If we consider Hollands' question which the ruling class implicitly asks itself— "who wouldn't want to be smart?"—in light of the ecologically apocalyptic considerations of Palmisano, the question becomes: "who wouldn't want to be smart, if being stupid means death?". Smartness seems to say that ecological salvation is possible—that there can be an 'efficiency with heart'—if only one could stop being worried and learn to love the technocrat-entrepreneurs, then we could figure all this out. The concerted application of intellect (which, in action, looks like the 'right intervention at the right time') will be enough to see us through.

A perfect crisis

Halpern's notes above also chronicle the role of the crisis, or in this sense, that which demands the 'mandate'. The crisis (whether its economic, political, environmental, or in our case, all three) raises a cry for something better, more well-reasoned, to step in to mount a 'rescue' or apply a cure. Marx and Marxist thought regularly discusses the role

of the crisis within capitalism, which helpfully explains the true nature of the concept. In the case of capital, a crisis is not necessarily a *failure*, but rather things becoming 'out of joint' as the entire system drives to contradictions which may be irresolvable under current conditions. In the *Economic Manuscripts* of 1863, Marx elaborates that the crisis "is the forcible establishment of unity between elements ['moments'] that have become independent and the enforced separation from one another of elements which are essentially one".[lxv] Smartness tries to soothe both this initial division and streamline the sometimes the brutal method of reunification. The mandate is a proposal for a softer, more passive replacement for punitive action on the part of the state, which in previous (but recent) times of crisis would often express itself either in the massive reassertion of state authority to 'bring the market in line', such as the imposition of austerity, in which the proletariat finds itself suborned to the requirements of continued capitalist reproduction.[lxvi]

In a certain sense, the brutality of austerity presages smartness; in both cases, the exact same capitalist system which engendered the problem proposes it can solve its own crises without the need of the state apparatus. Truncheons and rubber bullets and Pinkertons are no longer needed, goes the argument—instead, smartness can offer reasonable, common sense solutions. Urban life is merely one dimension which has come up as needing a solution. It is not by accident that the smart city intervenes in and around the 2008 crisis, which originated in and around property relations relating to mortgages in the United States and accompanied further images of the collapse of Detroit and the 'rust belt'. The public outcry of the bank bailout, middling as it may have been, was only a further detriment to the reinstatement of capitalist business as usual, and as such will not be tolerated again.

Of course, just as previous methods of correcting the crisis further engendered their own crises (as any review of economic history of the 20th century will make clear), the smart city nevertheless is riven by its own potentials for further crisis.

The impersonal returns to the personal: laws of motion in the smart city

The smart city operates at the level of everyday life by invoking individual consumption and forms of life in order to construct a technological-economic lifeboat for the ruling class. Put in another way, it presents a *universal* which exists as an aggregate of *particulars*; the smart city jumps from the smart phone, the self-driving car, 'green' construction practices, and the home assistant. In a sense, the smart city has the same relationship to capital that a snow globe has to the location it depicts; it is a spatial metaphor which captures capitalist reality and makes it tangible. The specter of the smart city is so auto-reinforcing as a teleological waypoint that the metabolism from the particular to the universal (literalized in the form of the extraction of communicative data, among other things) and back again (in the form of the hegemonic requirement of participation in 'smart' life as a project) abets a large degree of freedom in the exact mode in which the particular is carried out. Just as capitalism offers individual subjects wide latitude in their actions and lives as long as they participate suitably in capital's production and reproduction, one may imagine the smart city to function the same way: one may be, within reason, political in the smart city or make ethical judgments, as long as the universality of the smart city remains untroubled.

But how, and where, does it all begin? How, for example, has the smart city come to occupy a position of seemingly overwhelming anticipation, to the extent that even its detractors must discuss it as if it is already here? This is the point where the events in Toronto provide an eye to, or a microcosm, of smart cities and smart-washing as it has taken place around the world. Sidewalk offers first the image of a technochauvinist utopia as an *aestheticization of smartness qua politics*. Sidewalk has learned its lessons from other smart city purveyors. Where the 'big players', like Cisco and IBM, shoot directly and publicly for government contracts, Sidewalk makes a concerted effort to win public opinion and keeps its engagement with municipal authorities hidden and secretive. This is lucky for me: Sidewalk cannot help but to make its intentions clear,

even though those intentions must first be sieved from the surrounding vainglorious technochauvinistic arguments being made. So, for this thesis, critique begins at the same point as the object of critique: with the presentation of a Vision.

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[lxvi] "Crisis of the Crisis State - Antonio Negri," libcom.org, accessed March 9, 2019, http://libcom.org/library/crisis-state-antonio-negri.

Images and space

Many sets of eyes are on Quayside and the greater Port Lands area, which currently is a mostly vacant area of industrial brownfields up against Toronto's Lake Ontario coast. Sidewalk Labs (through its local office, Sidewalk Toronto) and its parent company Alphabet (or Google, as most people seem to continue to call it) have been selected by Waterfront Toronto, a government agency charged with rehabilitation of the Lake Ontario coast, to construct perhaps the most thorough 'smart city' project to date on the former docks. As of the time of this writing, excitement over the project continues apace, but at the same time, a mounting wave of resistance both locally and worldwide slowly pieces itself together. Sidewalk's has plodded through a Byzantine process of 'public engagement' community meetings, resignations, leaked information, and stopgap reports, which has created a quagmire Bianca Wylie calls "process trolling".[i] At the same time, Sidewalk is running into mounting local resistance. In addition to community pushback, the Canadian Civil Liberties Union has filed a suit against Sidewalk Toronto, calling the project "invalid", citing concerns over surveillance and Sidewalk's relationship with Canadian government.[ii]

Information about the project, from the foundational agreements in existence between Waterfront Toronto and Sidewalk, to the agreed scope, and even the master plan itself, have not been shared in full. It is therefore hard for one to get their bearings—and it's far from a conspiracy theory to think this may be a project to legitimize Sidewalk, by getting the public to interface with them as if they're a governmental entity so often that people start thinking of them as one.

So what do we know about Quayside thus far? As John Lorinc remarks in his article "A Mess on the Sidewalk" for *The Baffler*, not much: Sidewalk's promise "remains difficult to discern".[iii] He speculates that "Sidewalk wants to build an entirely new district, akin to London's finance-and-culture hub, Canary Wharf, but fitted out with all manner of cutting-edge technology".[iv] Beyond this, there really isn't much, and what there is is

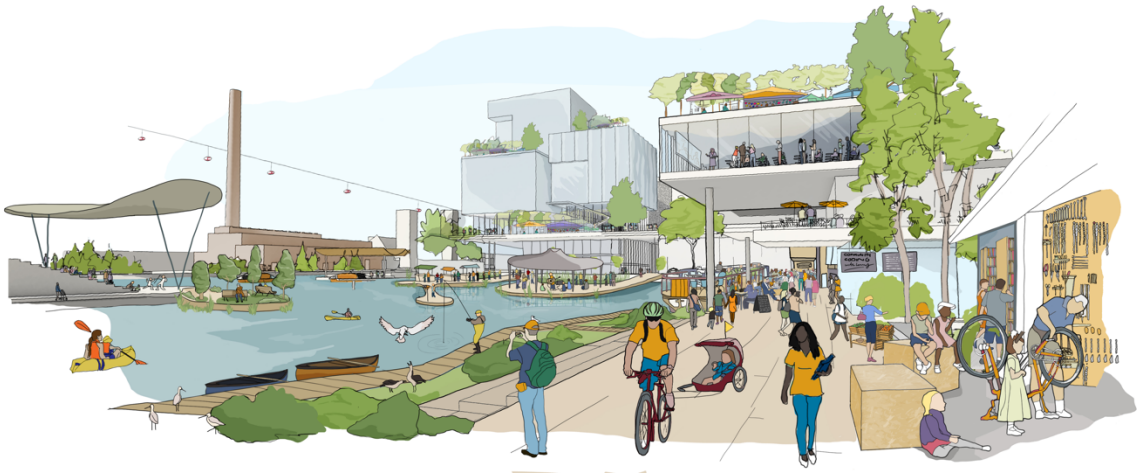
vagueness and ambiguity, or in Sidewalk's own terms, a 'vision' more than a 'plan'. This is especially true when considering the spatial dimension of the Quayside project: the sum total of the output at this stage (prior to the release of Sidewalk's official, long-awaited master plan) which could be thought of spatially is, regrettably, quite flat—consisting of a few perspective images. These perspectives are either axonometric projections (3D dimensional diagrams which essentially function as spatialized plans) or, more interestingly, on-the-ground perspectival images. A discussion on the former of these will happen later in this chapter; for now, the latter are of greater importance as they annunciate, as directly as possible, Sidewalk's spatial intentions in the Quayside-to-come. These perspectives are, in the terms of Henri Lefebvre, artifacts of a unilateral faculty of spatial power, or "representations of space", present in the conceptual images released by of Sidewalk Toronto. However, they cleverly sidestep articulating that spatial power, even going so far as to make a case against 'centralized' or authoritarian spatialities. [v] There are no plan views here, no empty bird's eye views. Sidewalk is building a very different utopia than the city planners and visionaries of yesterday did. Sidewalk's is to be a *lived* utopia.

Utopia and the aesthetic

In 2017 Sidewalk Toronto submitted its response to Waterfront Toronto's Quayside Request for Proposals (RFP) as a nearly 200 page 'Vision' document. This document is where it all began: the first engagement between Sidewalk and Canadian government, as well as the first substantial offering which presented in any detail Sidewalk's intentions with Quayside. The document offers nothing concrete, but rather a 'Vision' of what is to come, some of which has been superseded by more recent discussions and publications, in a process Peter MacLeod breezily notes contains "a lot of 'bear with us' as certain ideas advanced and others fell to the side".[vi] The RFP offers inspiring statements, built-out hypotheticals, and, most importantly for this chapter, illustrations of what Sidewalk is planning, all wrapped in a document that attempts to split the

difference between soberly authoritative and whimsically inspirational (bookended by pages of what artist Michèle Champagne calls "cutesy drawings" of Toronto's quirks).[vii]

There have been two 'phases' of spatial images over Quayside's nascent timeline which correspond to the creators responsible for the images, but may also figure as an illustration of the developing maturity of the project. The first category I will refer to as illustrations. These images are clearly intended to be read as renderings done by hand, implying activity and a human touch (although they clearly were not—thanks to my former training as an architect and intensive usage of the 3D modeling program SketchUp, I recognized several people who are stock characters provided with the software. Funnily enough, SketchUP *used* to be owned by Google).



Sidewalk Labs. "Public Realm vision." Digital image. Sidewalk Toronto. October 17, 2017 Published. Accessed January 23, 2019. https://sidewalktoronto.ca/documents.

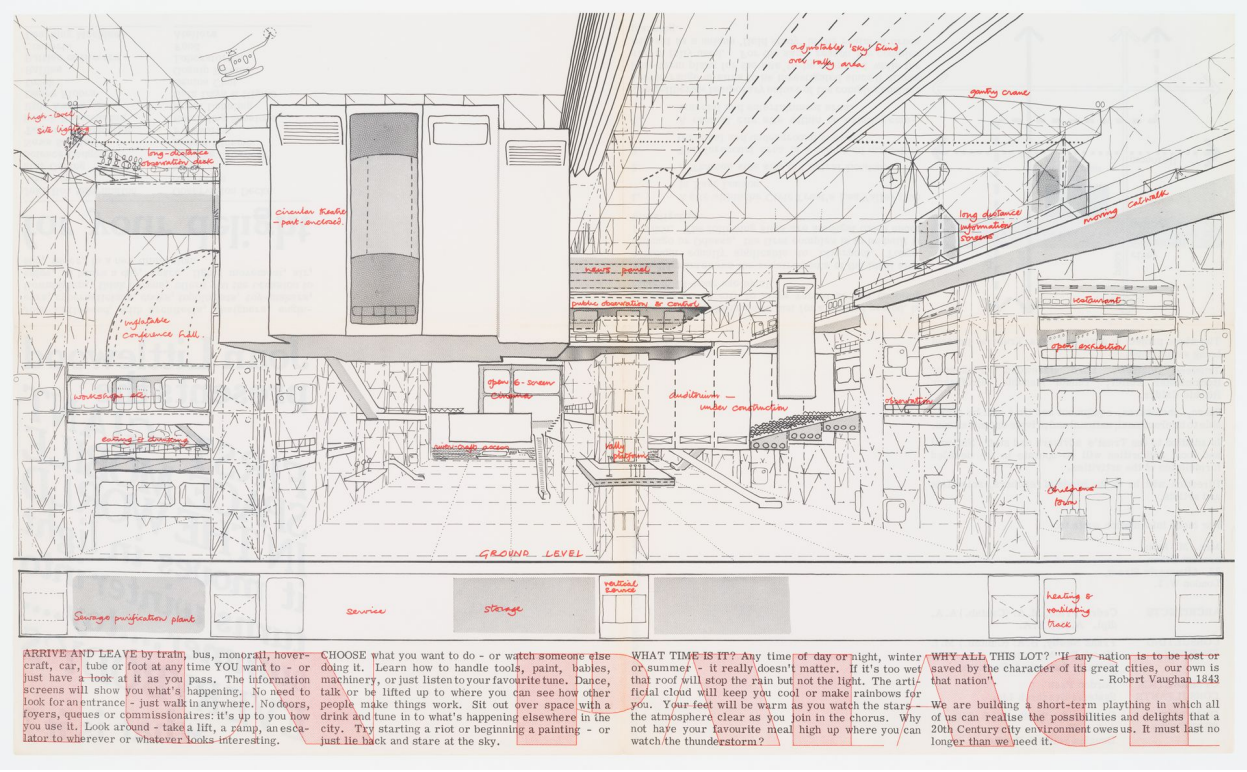
These images are calculated to burst with vibrancy. In the above "Public Realm" image, people are placed front and center. The architecture recedes, appears as a dimly contoured box, or is else completely transparent, showing people lined at the windows to observe the street below. The street itself is almost hysterical with activity, as students, cyclists, and happy couples drift lazily through a similarly faceless (literally) throng of neighbors. Children crowd around open workshops. Lake Ontario's limpid

blue water sits glassily below open air cafes and greenery. There is no technological artifact visible in these images more advanced than a bicycle, unless you count the cable car which appears as a thin, single line in the distance.

Sidewalk Labs. "Mixed-Use vision." Digital image. Sidewalk Toronto. October 17, 2017 Published. Accessed January 23, 2019. https://sidewalktoronto.ca/documents.

The second illustration image, "Mixed-Use vision", places architecture front and center; humans appear as desaturated, tiny figures, thronging pleasantly and enjoying the spaces they are in appropriate to their intended character. This image is perhaps the greatest overture to the vernacular of 'traditional' architecture drawing, as it is a cross section, slicing through several structures and plazas. Even at this sufficiently drawn-back scale, the image still bursts with implicit frenetic activity. We can read the section as a diagram of categories of spatial usage, each hemmed into an appropriately proportioned compartment: here's the open space crowned with a massive tree, as a crane swings overhead. The rock wall and playground flank the plaza on either side. Some spaces are cafes, restaurants, lounges, offices, or fulfill some ambiguously technological purpose (particularly of note is the incongruous anaerobic digester, its massive bulk placed for some reason on the 6th floor above some sort of cafeteria). Again, the architecture does its best to disappear; if anything, it blankly defines the colorful scrum of the individual rooms. One may say the image, above all, depicts a scene of delirious productivity. In both these images taken together, a simple, even

obvious theme emerges: the project exists as a host for a vibrant, even fecund, social life and blissful cycles of knowledge work and conspicuous consumption; the architecture admirably supports these functions. There are obvious architectural analogues here: as Shannon Mattern, writing on Hudson Yards in New York City notes in designing that project's 'Shed' culture and arts center, the architects Diller Scofidio + Renfro looked to Cedric Price's 1961 Fun Palace project.[viii] The delirious free-form nature of Price's liberated architecture seems to speak to the technochauvinist urbanist.



Price, Cedric and Joan Littlewood. "Promotional brochure for Fun Palace," 1964. Mechanical line drawing, 14 1/4 × 23 9/16 in. (Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montreal, Canada).

In Quayside, Sidewalk has been much more explicit in its adoration of Price's work, shooting to ape not just its form, but the ideas that drove it. These ideas appear here in a bastard form, with the social-collector-esque aspects of Price's never-realized architectural-technological "scaffold or framework" which is "enclosing a socially

interactive machine", sadly stripped out.[ix] Fun Palace's form lives on as a sort of suggestion of a departed social frivolity, but the landscape Sidewalk imagines is less one of play and more one where people coalesce and disperse like atoms.

Pictureplane for Heatherwick Studios. "Courtyard." Digital image. Sidewalk Toronto. February 14, 2019 Published. Accessed January 24, 2019. https://sidewalktoronto.ca/documents.

The second set of images released by Quayside (of which the above is a typical example), two years later in the project timeline, may be less descriptive of the ideological underpinning of the project, but attempt to use common vernacular of architectural images to leaven their aims with maturity. These images were made by the architectural firms Snøhetta and the much-maligned practice of Thomas Heatherwick (of recent Hudson Yards 'The Vessel' fame) and depict the strictly residential component of Quayside. Released on February 14th, 2019, in support of a flashy Sidewalk Toronto 'Project Update' presentation -- two years on from the aforementioned RFP response -- these images are much less diagrammatic than previous spatial representations.[x] Insofar as 'maturity' is concerned, these images adopt a style typical of renderings for contemporary big budget architectural undertakings—a

cinematic, maximalist representation which asymptotically approaches the photoreal. These renders, and their specific invitation to inhabit an administered simulation, are often produced either in house by the architect (as is the case here) or by third party 3D visualization services. They are intended to show off not just a design's achievability or an imagined phenomenological atmosphere, but to function as a 'proof of concept', possibly to secure further funding and/or whip up excitement among the public. In the case of these images, the clear focus is on the machined organicism of "tall timber" construction of the towers and the "building raincoats" which Sidewalk proudly announces will make the public realm comfortable for more days out of the year. What these images also do is banish the reality of the construction process which lies ahead—in these, the financing is secured, the land is cleared, the plans are finalized, construction undertaken and finished. In this cinematic image of the future, the city can be imagined to have bloomed fully formed and fully inhabited. All in all, these images serve to re-orient the project—away from a look to a nostalgic-romantic past of community and vital activity, and forward to a utopia of seamless, highly cinematic technological capacity. This aesthetic move, wrapping the 19th century's imagined community and low-fi living in the raiment of planetary technologicization (as described by one commentator: "what's not to love about a mix of 19th century planning and building mixed with 21st century technology?"), presents Quayside as not just on the cusp of the urban revolution, but a distillation of all revolutions, and all cities, prior to it, unified under the star of a fully developed technological schematic.[xi]

The shape of things to come

In the case of Sidewalk, the perspective as not just the dominant way in which the future is spatialized (or packaged)—it is the only 'reality' (read: simulation) the public has yet seen. These images—both the 'preliminary' illustrations and the current perspectives, make ideological arguments with respect to the vision which drives the Quayside project in general. Perhaps the most important argument occurs when both phases of images are read together as a cohesive statement on the part of Sidewalk

about Quayside. This project stammers in the language of the architectural but mutters the vernacular of real estate under its breath. Urban space and the 'public realm' is in some ways, for Sidewalk, a necessary expedient, and as such is loosely signified in the sheer deluge of people present in these depicted spaces. Even in the more dehumanized later renderings by Snøhetta and Heatherwick, the wood buildings speak to a wider naturalism or urban ecosystem (granted, in the most literal way possible). I can't help but wonder if this is intended, either consciously or unconsciously, to head off the critical spatial practice of architectural critics like Jennifer Bloomer, who lambasted the traditional "sterility of the architectural drawing process" through her work.[xii] Sidewalk has bent over backwards to center the human figure, pulling away from stark and ordered, architecturally-oriented imagery to ones which seem vibrant and lived in.

The architectural or spatial character of the project is buried under an avalanche of an imagined quotidian; the people may be faceless (or 'de-identified') but are nevertheless marshalled to populate Quayside as shades, mechanically undertaking in what looks like enjoyment. We are meant to see ourselves within these images, within this future, and the corporate image becomes a porthole for viewing what it means to be an aestheticized subject—to see the social intentionality in the image of the market.

Yet the spatial remains, somehow, bursting to the fore when we notice 'something weird' in Sidewalk's representations. The supposed reality purported in the images works against them ('there's the crowd, but where's all the people?'), wearing at the scrim of the cinematic until reality threatens to show through. Hito Steyerl asks: "what if images were…transformed into the objects they claim to represent? What if the flat plane of representation acquired an extension and even a body? What if images turned into stone, concrete, plastic, into seemingly dead things?"[xiii] What again, if this representation was foreclosed, a product of a capitalist hivemind which has taken ideals of good living and high technology and made from them images which are intended to be taken as representations?

It is important to note that Lefebvre's representational space & representations of space are both resolutely political in their formation, identifying actors, hierarchies, and agents of spatial power. In addition, they represent two points of a 'spatial triad', the final vertex of which is labeled 'practice'. Embedded within Sidewalk's images is not just the loose outline of an approach to space but the whisperings of a future spatial-image politics. This politics is presented in as demure a form as possible, invisible and nearly defanged by the idyllic comportment of the images themselves. In *Dissensus*, Jacques Rancière points out that this is exactly what aesthetic presentation does best, facilitating ideological permeation by allowing the animating (or underlying) ideas to appear as non-political, as the "consensual framing of a common world" which makes no explicit arguments.[xiv] Molly Sauter makes a similar point in her essay "City Planning Heaven Sent", asking: "[w]hat politics do these projects deploy? In what direction do these proposals push the future of cities and the future of urban technology? How are their dreams already directing the conversation, dead-ending other avenues of development and design in swamps of detail?"[xv] The careful decimation of political content in a recurring theme throughout Sidewalk's process. The aesthetic and the spatial are allied in making an argument for the technological.

The smart city's revolutionary character

Aesthetic categories are not enough to arrive at the heart of Sidewalk's argument, though they do begin to illuminate its contours. What is at question here, beyond the aesthetic, driving the spatial, and—yes—more than the technological positions Sidewalk and the concept of the smart city claim, lies a socio-historical process of the smart city as a conceptual figure, and an heir to past images of urban reconstruction. The smart city is often written off as a future-image or vacuous marketing speak; and to a large extent, these are both true. However, there is a socio-historical engine behind it, a tortured, dialectical process of contradiction and sublation which is only now coming into view, and which has (in my opinion) yet to be sufficiently discussed. Partially this is due to the fact the concept of the smart city is only beginning to undergo a process of

definition and self-definition, that this is the 'right time' to intervene in the process by attempting to discover it within the "knowledge of a universal historicity moving in contradictions".[xvi]

As an avatar of technochauvinist impulse, Sidewalk itself invests both itself and the Quayside with epochal importance, amounting to what Shannon Mattern calls "telling its own version of urban history".[xvii] Sidewalk restyles human history as urban history, and urban history as technological history: "the world sits on the cusp of a revolution in urban life every bit as transformative as the arrival of the steam engine or electricity, powered by a new set of digital and design breakthroughs" (which of course, Sidewalk will nobly be shepherding into being).[xviii] Though obviously false (and reactionary!) in its calls, Cedric J. Robinson cuts to the heart of Sidewalk's hubris; it is the undertaking of "exercises through which the political persists", which is to say the status quo is recompounded and furthered, not abolished and made anew.[xix] John Lorinc identifies that Sidewalk shares in a long history of what may be called 'urbanism as prescription'—an attempt to articulate and solve for "the social or economic failings of the city at particular moments in time".[xx] He mentions specifically "Ebenezer Howard's late 19th century Garden City suburbs; the Levittown subdivisions of the post-war era; the New Urbanist enclaves of the 1990s, including Celebration [Florida]".[xxi] But it is important to clarify that while Sidewalk identifies with this archetypical forms in spirit, in many ways it intends to break from them in both form and content. Lorinc's diagnosis that Quayside represents "a very *au courant* take on the old idea of the company town" is, however, somewhat inaccurate (though one must not blame Lorinc for this, as he was writing quite early after Sidewalk's initial announcement).[xxii] Though a Google campus will likely appear nearby if Quayside does actually come into being, this can almost be considered an afterthought, or as the carrot (with Quayside itself being the stick). That said, it is important to distinguish: Quayside is not a company town, rather, it is a town in which a company comes to represent itself.

Though helpful, a truly historical analysis of the smart city must not fall back onto an 'architectural' history of successive moments, which sees time as an aesthetic slideshow of realized events which, once they end, only hang around as specters. Sidewalk, like many utopias, arises out of a formulaic process of synthesis—a little of precedent A here, a little of precedent B there—and thus sets itself up as the termination of a long calvalcade of urban moments in a final, revolutionary period. This is technochauvinist history, in which every advance springs off the back of ones that come before it in a race to a zenith (which never arrives). Thinking in this way obscures the messy, contingent realities of these moments both before and after they were constructed, and recomposes history as something to borrow from, as a dollar bin to rifle through, and erudition in the selection of precedent worthy of the highest award. Adam Greenfield points out that this creates bizarre, ahistorical forms in his discussion of Songdo International Business District, a built-from-scratch smart city prototype outside Incheon, South Korea: "Even though it started from zero, and could have taken whatever shape its developers felt most appropriate to the sociotechnical practices of the time and place into which it was launched, Songdo's master plan replicates the formal order of a midsize American city of the mid-twentieth century".[xxiii]

Sidewalk's RFP document makes its historical position known forcefully, comparing itself to a strawman representation of the typical city which it says is "straining against its aging infrastructure and the traditionally sluggish pace of urban change".[xxiv] Yet once again, a selective historicization of urban form is employed to buoy its goals. "The world's great cities are all hubs of growth and innovation because they leveraged platforms put in place by visionary leaders," the RFP document notes.[xxv] This sentence is quite ideologically complex; first, there is the wholesale identification of cities as endogenic laboratories of market forces, as a "platform", taking in resources and labor and outputting technology and production. Secondly, despite the technochauvinism implied within the internet city, it returns the figure of the visionary, but no less Oedipal, leader. To return again to Cedric J. Robinson, this recapitulates the agreed-upon limits of the political: it's always about Order, which is about Authority, which is

dependent on a *strong leader*.[xxvi] Sidewalk continues with a selective tour of urban platforms: "Rome had aqueducts, London the Underground, Manhattan the street grid. The creators of these physical platforms, along with digital ones like the web or Linux, spurred innovations by a diverse group of entrepreneurs and urban planners".[xxvii] Sidewalk's carefully makes sure no one would confuse its idea of urban leaders for the authoritarians of modernity—instead, these leaders are the geniuses and entrepreneurs who had leadership thrust upon them, and their sole imperative is change *qua* progress. They insert themselves into this pantheon through the back door, by way of Alphabet's Android: "an Android phone changes with every new downloaded app; the original street grid of Toronto changed with every streetcar track placed on top".[xxviii] A clever little reversal: it's not really that cities are platforms, but platforms are, apparently, *modeled on cities*.

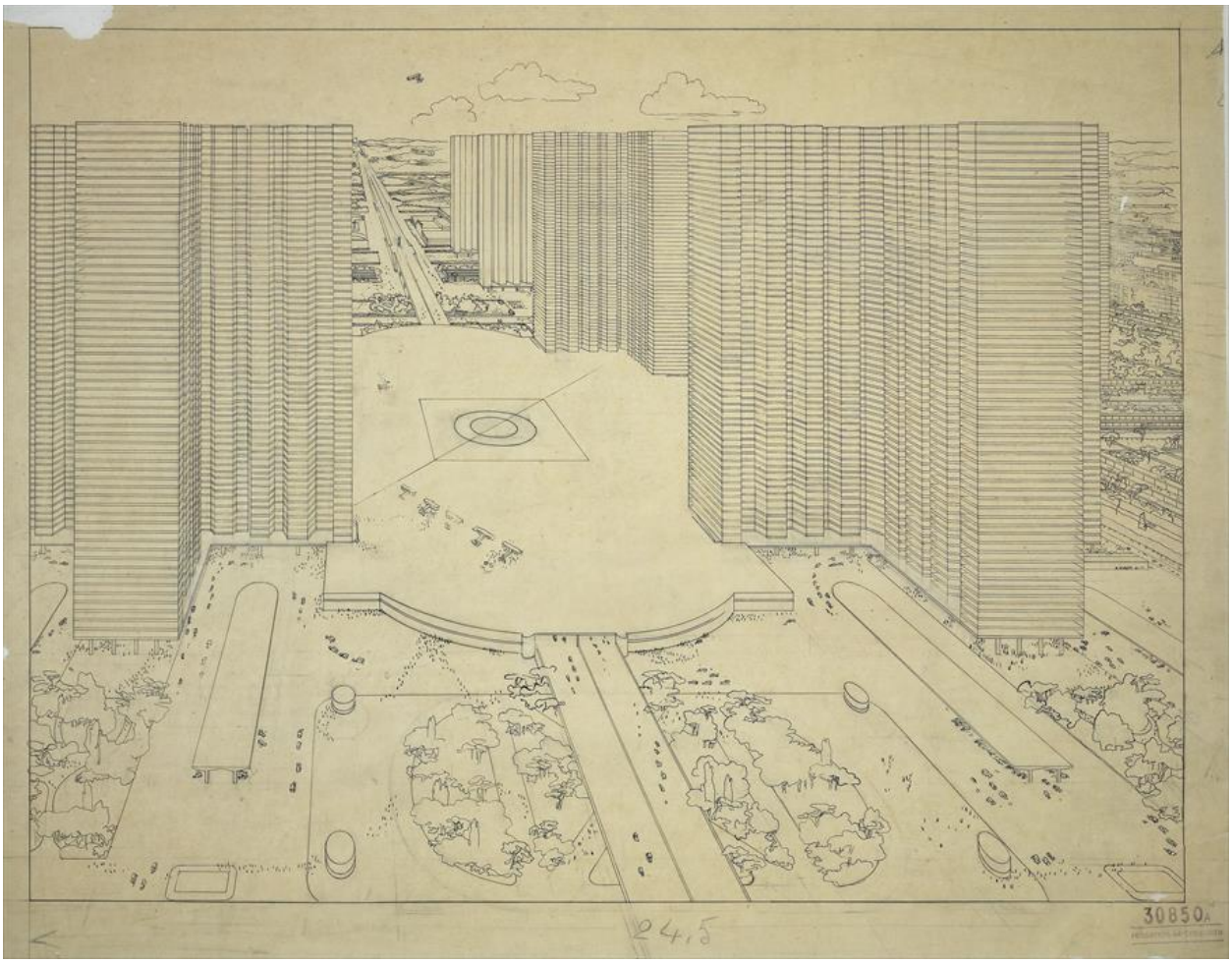
With these statements, it becomes clear that Sidewalk does not just view history as a succession of stages as I have mentioned previously, but that its attitude towards history is inherently *reactionary*. It works perfectly with the way that bourgeois, technochauvinist thought thinks of history and ideologically makes sure everyone else thinks of history. Sidewalk's presentation of urban as platform as revolution depends on a presentation of history across the whole of society as not a process but as hypostatized chronology in which the procedural "dynamic principle impelling reality forwards" is changed "into a static one designed to *fix the stage presently attained as an absolute* [italics mine]".[xxix] Sidewalk's declaration that smartness is constitutive of a revolutionary end of the city as we've known it, and what remains to be done now is to explore the contours of the "discussion of technologized urbanity", depends first on its ideas of history escaping scrutiny.[xxx] Rohit Aggarwala, Sidewalk's urban design czar, is fond of explaining his position as one which looks at urbanism's "first principles". By allowing Sidewalk to dictate what these principles are, by allowing it to establish certain givens, they are allowed to perform the technochauvinist trick of presenting history as a diagram. Against this obfuscating, dramatic plainness "we must never

accept a simplified presentation that simplifies the problems and solutions themselves, rather than the historical constellations of problems and solutions".[xxxi]

So let's return to first principles. What is the real history of the smart city? How has smartness emerged as the new lodestar of urbanity? To be against the smart city requires, first and foremost, to understand it not as an anesthetized artifact but as a contingent, emergent, and contradictory element which is only now appearing—which prevents even the best smart city critiques (of which there are many!) from attacking its character directly.

The "time for great architecture" is over[xxxii]

In his 1964 manifesto *The Radiant City* (*La Ville Radeiuse*) Le Corbusier declared his own revolution: that the "time for great architecture" has arrived.[xxxiii] For better or worse, his vision—of architecture at a promethean scale, of architecture as a charismatic, ordered attack on entropy—has now fallen into the dustbin of history, and the monumental sweep and daring of Corbusier's radiant city Plan Voisin, which famously proposed to wipe out the palimpsest of old Paris and institute a field of towers, parks, and roadways in their place, now appears quite crass to us at this far remove. Corbusier's work has long been used as a representative of the worst excesses of modernist master planning, and its complicity with state power (be it fascist, democratic, or otherwise) is both well-documented and the topic of continued debate.. The representation of space in his works is coextensive with and presupposes an ordered, regulated society. These images are starkly different from those provided by Sidewalk: Plan Voisin's largely depopulated, and the project communicates most eloquently in a plan view. Endless cruciform blocks march across a totalized field.



Le Corbusier. "Perspective of Plan Voisin." In *Ouevre Complete*, by Le Corbusier and James Fox, color plate 12. New York: Little, Brown and Company, 2010.

But both the Radiant City and Quayside share the same general idea: a more perfect society can be achieved through the spatial application of ideology at the hands of a hierarchal power. Crucially, however, Sidewalk has learned from the modernist past, and firmly establishes its revolution as a clean break with the particular sensuality of authority implied within it. It once again posits that it has corrected, and thereby completed, the urban process, finally arriving at a "fact-based, data-driven planning" to be applied in Quayside.[xxxiv] This planning is presented as a rational, consensual act against the authority of the master plan as it has appeared in Corbusier and across history: "masterplanned communities," the Sidewalk RFP states, "often fall short of aspirations—locked into fixed typologies and conceived to address needs that are

already out-of-date by the time construction is complete".[xxxv] By contradistinction, Sidewalk denounces the fixity of urban life in favor of a city which is malleable by design, a "merging the physical and digital realms, creating a blueprint for the 21st-century urban neighborhood".[xxxvi] With this, Sidewalk begs us to dissolve our remaining attachment to the old, authoritarian urban order, asking that we embrace progress over certainty, claiming that "cities themselves will change in unknowable ways once the traditional rules of urban planning disappear".[xxxvii] The internet is the vehicle Sidewalk chooses, breathlessly claiming that Quayside will become the heir to the principles embodied within, and occupy a similar world-historical position. "When the internet first emerged as a small network of researchers," Sidewalk asks, "who envisioned that it would one day transform the way people navigate city streets?"[xxxviii] Sidewalk truly listened to Charles Jenks' famous remark on the occasion of the destruction of Pruitt-Igoe—that modern architecture had died of its own accord. This goes way beyond the aesthetic of modernism, but is a declaration that the positivist ideology which once drove it has died as well.

Sidewalk proposes an internet logic to replace that of top-down command and control. The version of the internet it looks to specifically is its deregulated, utopian 'cyberpunk' phase—for all intents and purposes gone now. When pressed to speak practically, Sidewalk elaborates that it is not just proposing to implement greater connectivity or technological capacity, but to resist the authority of the plan by allowing for, promoting, and designing for their urban 'platform' to "dynamically adjust[s] city systems…as urban conditions dictate".[xxxix]

Sidewalk's oft-repeated claim that it will construct a "city from the internet up" claims to depart once and for all from modernist impulses, but in fact reignites its underlying drive in a slightly modulated form. In the face of the Plan Voisin, Oskar Hansen' Linear Continuous System, and even Archigram, Sidewalk proposes that order must be foreclosed, in favor of an emergent, self-correcting fluidity. The proposal of a liquid urbanism seems innocuous enough, perhaps even pleasantly pastoral. "Cities thrive on

public activity and dynamism," Sidewalk notes, innocently enough. "The most exciting ways to activate the public realm are often a mix of traditional uses in flexible spaces: the cafe that puts tables on the sidewalk, the teacher who uses a park for nature lessons, the artist who turns a street corner into a stage".[xl] One would be hard pressed to find anything objectionable here.

The sole province of the urban planner in Quayside, if they exist at all, is to devise new ways to open up space, to rethink it, to allow for a maximal amount of flow. The city, in terms of form, becomes nearly liquid to the point of emptiness: it is a scaffold (but even the Fun Palace was too rigid!), a framework, an ecosystem, a field of abstract possibility. This radical re-interpretation of urban space transforms into a new iron law: the non-plan in Quayside "is rigid in its conviction that 'radical flexibility' is the hallmark of the future city".[xli] Sidewalk would like us to believe that it does not have a plan for Quayside, in the traditional sense. Its usage of famous cities conditions legitimization by appealing to cities that work, while at the same time we are to that the singular goal of the Quayside platform is to get out of the way.

Mere dissolution, however, is not an end in itself. "A growing city must have built-in flexibility to support ongoing innovation, and the ability to adjust as technology, market cycles, and urban lifestyles move in new directions".[xlii] This fluidity is not just the logic of the digital, but of the financial. Sidewalk intends for Quayside to dance to the rhythm of the capitalist market, and to support fully the lifestyle it engenders. By focusing on and selecting for explicitly capitalist forms of life, Sidewalk has removed both space and the resident from view. This is an urbanism of nihilism. The city is simply an infrastructural intensity, "an ever-mutating, lavishly capitalized, revenue-generating service" which aims only to perpetuate itself, and to become just as formless, as libidinal, as all-encompassing as capital.[xliii]

Space for capital

The specifics of Sidewalk's non-master non-plan are arrested at a conceptual level for the most part. Some more concrete information does exist, though: readers of the RFP will find references to a "flexible building typology" called "Loft", characterized as having a "strong shell and minimalistic interior" to, of course, promote a freewheeling kaleidoscope of usage and occupancy.[xliv] None of this is new. Besides Cedric Price, there is a long history of open building typologies in both residential and office contexts, pinned to structural advances made over the course of the 20th century. The open office plan is generic in urban commercial space. Mies van der Rohe's most lasting innovation, for example, was the removal of internal structural support on office floors to the exterior, forming a "curtain wall" along the outer walls of skyscrapers.

Loft's major innovation lies in turning openness from a concern with space (as in the case of mid-century skyscrapers and Cold War moves to suburban campuses)[xlv] to an openness of *emptiness*. This new logic prizes a freedom is not spatial (defined as fitting the most desks possible, or admitting sunlight as deeply as possible) but *temporal* (allowing for the maximum number of programmatic iterations to occupy any one particular container.

A quick note here before continuing: two years on from the RFP, Sidewalk has phased out the Loft approach in favor of a new system called Stoa, first revealed at Public Roundtable 3 on August 14th & 15th, 2018. Since both Loft and Stoa have not been rigorously formalized in a design sense, it's hard to know if Stoa should be treated as a refinement of the Loft concept or another concept altogether. In the publicly available presentation from Roundtable 3, Stoa appears as a similarly 'fluid' system, depicted on the first and second floor of structures. Sidewalk describes it as comprised of "[m]oveable walls, fast floor installations, and flexible wall panels make it easy for new retailers or community organizations to activate the space", which in my view positions the system as the direct progeny of Loft.[xlvi] For the rest of this chapter, I will

continue to discuss Loft as details on Stoa remain scarce, unless there is a particular point from the latter system I wish to discuss directly, as much more conceptualizing exists around Loft specifically.

Loft is the method by which Sidewalk intends to give urban space fluidity. The goal is to provide the minimum of spatial definition and the maximum of malleability in order to "invert the normal hierarchies and separations of a purpose-designed urban development".[xlvii] Loft is always spoken of as a pilot (as in tech, again marrying the physical and the digital) which will enable easy conversion of building uses and simultaneously integrate technological monitoring and efficient usage of space in order to accelerate the "speed at which streets evolve" (whatever it is that means).[xlviii] When applied to commercial or public space, Sidewalk foresees Loft assuming the form of the "next-gen bazaar", a "makerspace" populated by "activity stalls that can be refreshed quickly".[xlix] (Later documentation on Stoa echoes the same call to antiquity of the bazaar reference—besides the name, Stoa's first introduction in the Roundtable 3 presentation features an image of Raphael's famous *School of Athens* fresco. The philosophers of the future will be examining life in pre-fabricated enclosures next to start-ups and 3D printing labs, I guess). Altogether, the Loft is the way in which the built environment in Quayside is to be set in motion, "optimized for optionality", and equipping spaces with "the core infrastructure to adapt".[l] We are to imagine Loftspace not as fluid, but deliriously responsive to our every whim, the built landscape bending to our will (and the needs of economic flows). Despite the inherent absurdity of this premise (how will each recombinant Loftspace handle plumbing, for example?), it remains intoxicating—promising a liberated utopia of one's own just over the horizon.

Spatial usage, despite claims that it will be essentially limitless, as free as navigating to a different website or opening a program, nevertheless remains beholden to capital's abstracted imperative. The "next-gen bazaar" is illuminating in that it is thought of as both sweatshop and storefront—a dramatic compression of commodity chains into a single space, which itself may evaporate in a day or an hour. Underneath the calls for

human fluidity and farmer's market-esque descriptions of a bazaar for the future, the seething landscape of capitalistic libidinality and progress bubbles. It's a question of scale and of platforms, and space is expedient only as a place where people may buy commodities or create market opportunities. "Whereas a neighborhood of a few thousand people will produce a modest market opportunity to attract third parties to the platform, a district of networked neighborhoods will be powerful enough to draw companies and entrepreneurs from all over to take part in Toronto's new ecosystem".[li] It is here that Sidewalk's argument ends where it began: aesthetic-individualist arguments build up the groundwork for Sidewalk's technochauvinistic ideas of spatial freedom, and from there, space is no longer necessary except as a possible incubator or point of sale. The grandiose ideas of fluidity, responsiveness, gleeful turnover and so on don't really offer anything new. Spaces are opened up and subdivided in cities every day. What Sidewalk proposes is to shorten the timetable, eliminating labor (building and tearing down walls), but the undergirding logic of abstracted space as a container for commerce does not just persist, it's been upgraded. The Cartesian grid which first makes spatial understanding and coordination possible has been shored up and set in motion. This is Descartes on the trading floor, Cartesianism totally given over to a logic of ephemerality, of the market.

Of course, Quayside will contain homes, businesses, infrastructural areas, offices, gyms, and so on. Perhaps some of these will even be architecturally beautiful or phenomenologically pleasant. Sidewalk's focus is elsewhere. Commentators have known this since the beginning: "unlike conventional merchants of smart-city wares, Sidewalk sees data, rather than equipment, as its stock in trade".[lii] Bianca Wylie also makes the point that its less the space than the land development which is Sidewalk's other focus, what she calls a "real estate boondoggle"[liii] and Sidewalk calls "Patient Capital".[liv] Both descriptions lay bare the existence of space as the commodity which underpins the entirety of Sidewalk's actions—the design and conceptualization processes are only being undertaken because Sidewalk believes it can achieve a return

on its investment in Toronto. Space exists to facilitate the movement of capital from the very beginning, from real estate investiture to rent and data collection.

When urban space is conceived of in this way—as a channel for free transmission, as something to remain empty—the effects are disastrous. Despite the rendering images and their fastidious depiction of a vibrant quotidian experience, one must imagine life in these spaces, on these streets, as landmarks well up and disappear, and expectation is obliterated. This is an inhospitable environment. People are extremophiles in a neighborhood built solely for capital.

Perversely, there is a contingent of urban planning that has attempted to theorize the impulse of total destabilization present in Sidewalk's work. This destabilization, which I identify in Sidewalk as an urbanism of nihilism, is cleverly recast by urbanists like Jean Hillier as an Aristotelian *ontology of becoming*, countering the stodgy strictures of the being-ontology planning of yesteryear. Mark Purcell remarks that Hillier's line is that "when planners embrace becoming, they are forced to let go of the search for stability and certainty".[lv] Hillier herself states that she would like planners to "feel comfortable with the idea of an unpredictable future, with improvisation bringing together or pushing apart disparate flows, energies, events, entities and spaces in more or less temporary alignments".[lvi] Presumably, we are meant to view this as a good thing, that destabilization (or, in Hillier's Deleuzian parlance, deterritorialization) is its own virtue: planners are instructed to create, and we are constructed to love, cities which embody "dynamic or emergent properties rather than fixed ones", engineered to allow for "intuition and uncertainty, multiplicity and complexity rather than systematic certainties". Nigel Thrift takes this to its queasy apotheosis, wishing that "planning practice might become a kind of magic".[lvii] This magic, luckily enough, seems to be something natural—a tending-towards or evolution—that has the same ideas Sidewalk does.

The RFP clearly filters Thrift's magic through a Silicon Valley corporate translator. Change, in both cases, does not contain contradiction or undergo a messy process of transference; rather, change is simply progress (there is no entropy in Quayside!), an evolution to a higher stage of perfection (but not necessarily complexity). This progress is taken as self-capable, that it develops its own autonomy and "becomes an end in itself".[lviii] We can see this throughout the RFP: urban transit "blooms", networks "grow", and things "will be" or "become" a more ideal conceptualization.[lix] The implication is that these things happen on their own; that a sufficient freeing-up of productive 'urban energies' will engender their own smooth development into greater forms. "The network," the claim comes, "will organize itself".[lx] As Ken Greenberg wrote for Sidewalk in 2017, "[t]he good news is that cities are inherently great problem solvers…the sheer force of compression makes them crucibles of innovation, opening up new possibilities and ways of doing things through the inventiveness of many autonomous actors".[lxi] At the end of it all, the intrinsic problems of urbanity (whatever those may be) will be solved, and "[t]he neighborhood will be a bustling digital and civic workshop open to all, and its streets will be filled with exploration".[lxii]

Does an autopoetic, "magic" city truly exist in the sense that we think of cities? What is a city anymore, when everything is set in motion? Looking afield from Loftspace is not encouraging: it is not just the structures, but the urban fabric itself which is 'set free'. Welcome to the "city with an API",[lxiii] in which the compounded interactions of "tens of thousands of Torontonians" are put towards "accelerating the speed at which streets evolve".[lxiv] Rohit Aggarwala, Chief Policy Officer for Sidewalk, explains what the word "evolve" entails in Quayside: "[i]f we knew the patterns of pedestrians, cyclists, vehicles, we have a much more rational basis to decide well the sidewalk ought to be this wide, and yes this route needs a bike lane or not, or the bike lane it has is too narrow, and maybe there should be few travel lanes for vehicles or more travel lanes".[lxv] The infrastructural innovations Sidewalk has floated—such as intelligent curbs or crossing lights which refine the amount of time they give to pedestrians to cross over time, based on usage data, hint at a much more measured, though no less destabilized,

urban landscape. Sidewalk, again, evades the question of power, with the implicit claim that their 'API' merely functions as the demiurgic arm of passive popular usage. To call this surveillance (though it obviously is) is missing the point—more than *watching*, the API is locked into an relationship with the inhabitants of the neighborhood not as *people* but as a constitutive flow. Those "tens of thousands of Torontonians" drift smoothly in a Skinner box-type freedom, the walls and streets shifting imperceptibly to the will of the market.

Sidewalk's API approach to the city has broader aims than this type of invisible urban comfort, however. Outside of the Loft, the other major technological innovation Sidewalk promises to bring to bear is its "mobility strategy". Sidewalk proposes nothing less than the wholesale reinvention of urban mobility, employing what it terms "the most revolutionary technology development in transportation since the jet engine: the self-driving vehicle".[lxvi] This revolution has also lead to the proposal of a taxonomy of street types—Laneway, Accessway, Transitway, Boulevard—presented in Sidewalk's "Street Design Principles v. 1", which floats the idea of segregating streets by vehicle usage and top speeds allowed, pushing the most high-speed streets and their private cars to the periphery of the neighborhood and admitting autonomous vehicles, bikes, and scooters into the core.[lxvii]

Sidewalk's self-driving technology is already available from yet another Alphabet subsidiary, Waymo, in the Chandler, Gilbert, Guadalupe, Mesa, and Tempe suburbs of Phoenix.[lxviii] The system is still in development, but is to some degree capable of handling trips on public roads (though currently, these are undertaken with a human 'driver' in the case of emergencies or complex situations).[lxix] Crucially, Sidewalk pitches the self-driving network not as a private service, but as a civic transit system: a "shared-ride taxibot network can offer the advantages of point-to-point service with space and fuel economies approaching that of the city bus" which would feed into more typical urban transit systems, such as streetcars, buses, and the Toronto TTC.[lxx] Identifying a

real transit gap, Sidewalk aims to fill it not through the extension of existing lines, but the creation of an entirely new, unproven system with an uncertain date of completion.

As the Sidewalk RFP elaborates the benefits of the self-driving network, it mentions, in the same breath, its intention to create the "Ground Traffic Control System". The GTCS is given a narrow mandate as a computational clearinghouse, taking in the information from the aforementioned "adaptive traffic signals", from parking technologies in Quayside, and GPS information within the self-driving vehicles themselves.[lxxi] These will be synthesized in order to "balance individual and system efficiency, dramatically enhancing the performance of urban streets".[lxxii] The GTCS system appears to its fullest explication to date as Principle 3 of the Street Design Principles v.1 document, consisting of In-Pavement Sensors, Mounted Sensors, Dynamic Colored Pavements, Digital Signage, Parking App, and Enforcement Cameras. All this to define a simple parking space, a job usually accomplished by two lines of paint.[lxxiii]

The GTCS proposal should give pause. It flies in the face of the rhetoric which thus far has pointed to becoming or emergence and prioritized technological and spatial self-governance. Though GTCS, or something like it, would obviously be necessary in order to coordinate a system as vast as the self-driving fleet in Quayside will undoubtedly be, the way in which it is presented is telling. It seems the fluidity Sidewalk proselytizes as a good not just for Quayside, but universally, is not the neat self-abolishing package it is presented as; it engenders a whole new host of contingent problems. Control is once again required—not in the authoritarian sense of the systemic plan, like in Plan Voisin, but merely as coordination or *enhancement*. Having loosed the urban environment and set it in motion, a new bundle of subroutines is required in order to contain the potential unilaterality which may arise. Once again, structuration intervenes in the free system: not just *capitalist* logic, but the inherent terms of order of the capitalist system. GTCS, and other edifices of 'oversight', appear out of bubbling fluidity as a hard point of control. The beauty in oversight, especially when decentralized, is that the structure of control is not above its subject, but simply another facet of it. When everything

becomes fluid, fluid dynamics must become the model of control. In the words of Gilles Châtelet, "market democracy will be fluid or will not be at all"![lxxiv]

There are plenty more command structures hidden within the Quayside proposal. Buried on page 76 of the RFP, we are introduced to 'Map', one of the "Four Principles of the Digital Layer" as defined by Sidewalk.[lxxv] The four principles are Sense, Model, Map, and Account, which as best I can tell are loosely organized to share and borrow elements with other principles.

The Digital Layer is presented by Sidewalk as a concatenation of nearly all of Quayside's proposed sensorial capacities. It doesn't just harvest data from the city, but is placed on an equal footing with it as Sidewalk asks us to reconsider it as a "physical layer". The digital layer renders physical space into data, functioning as a bridge of sensors which will "generate a shared repository of data on the neighborhood".[lxxvi] The Sense, Model, Map, and Account features make sense of this data and offer platforms for its display and manipulation; they seem to be intended to assume the same role that 'urban dashboard' products occupy under another name. This information is intended "for day-to-day operations but also for public agencies and third parties working to improve services", all the while "empowering people to build solutions faster than is possible in cities today".[lxxvii] Exactly what that empowerment looks like, and what needs to be solved, remains up in the air.[lxxviii]

The section of the RFP which describes Map begins with statement: "Knowing where things are in the public realm allows a neighborhood to be safe, efficient, and responsive".[lxxix] "Map records the location of *all parts of the public realm in real time*, from the largest buildings to the smallest environmental sensors".[lxxx] Map's purview is exhaustive, including "the fixed objects—buildings, roads, park benches—and those that move—autonomous vehicles, delivery robots, drones" (curiously, it is not noted that earlier in the document, the objects here identified as 'fixed' are intended to be

anything but).[lxxxi] The reasoning for Map is simple. It "enables people and things to move around the neighborhood with maximum safety, confidence, and efficiency".[lxxxii]

Just like GTCS, the necessity of a faculty like Map is somewhat ironic—an attempt on Sidewalk's part to deal with the radical fluidity it itself declared an emancipatory necessity. With Map, Quayside becomes a territory which represents itself and which lays itself bare to the watchful eye even as it shifts ceaselessly, feedbacking beneath its own gaze. With Map's tracking the 'city becomes a laboratory'.

Later documentation has possibly done away with Map, with its 'powers' instead being vested in a third party startup called Numina that Sidewalk is 'piloting' in Quayside. Announced at the fourth 'Open Sidewalk' meeting between Sidewalk and Toronto residents on March 2, 2019, Numina was hailed as "a civic technology startup using computer vision sensors to make cities more responsive, so they are safer, healthier, and more equitable" founded in St. Louis. Numina's technology claims to offer broad identification of vehicles and people in public space, rendered as streams.[lxxxiii] The sensors Numina deploys apparently de-identify the data (to see a tech company which uses identification software bend over backwards to claim this data is 'de-identified', see the "Responsible Data Use Assessment for Public Realm Sensing Pilot with Numina" released by Sidewalk) and are oriented around tracking movements through space, but not public furniture or other non-motive features. Nevertheless, as is the case with all clarifications over the course of Sidewalk's development process, the idea of this chapter is to detect *intentionality*, not to predict or discern the exact technological outlays which put that intentionality into practice.

Why does this idea of urban space as a laboratory have so much staying power? Shannon Mattern, talking about Jennifer Light's *The Nature of Cities*, discusses its shadowy appearance out of the discussion of "social labs" in the 1910s, and receiving further development by Lewis Wirth in 1928.[lxxxiv] Chicago School urbanist Robert Park, in his landmark book *The City*, claims that the urban environment "shows the good and

evil in human nature in excess".[lxxxv] It is exactly this maximalization of conditions which, for him, begs a scientific approach, in which the city must be conceived as an anthropological "laboratory or clinic in which human nature and social processes may be conveniently and profitably studied".[lxxxvi] Owing to Park and the Chicago School's formative role in the creation of urban sociology as a discipline, this sentiment is in many ways endemic to any urban study to this day. Looking around, one can see this approach has been exalted and expanded: look at MIT's Senseable City Lab, Columbia's Urban Design Lab, University College London's Urban Laboratory, and countless others. The idea of the urban laboratory provides an easy allegorical point of entry for an urban scholarship which is attentive to the practical materialism denoted by urban life, and composes the city as a problem looking for solutions. Perhaps more importantly, these 'living laboratory' schemes propose to calve off a certain section or complex for study from a broader urban arrangement. From this establishment of the 'field of inquiry' questions are posed and asked.

The direct application of science in the context of the smart city is discussed at length by Orit Halpern et al. in their article on the previously-mentioned Songdo IBD in South Korea. The authors point out that Songdo represents a new urban epistemology which is not concerned with the documentation of facts but with the creation of "models that *are* territories", constituting a higher form of the urban laboratory: the city as a "test bed".[lxxxvii] "We argue that this test-bed urbanism is a form of administration and a redistricting of bodies and information into new global configurations".[lxxxviii] The test bed can be thought of as a productivist strain of the urban laboratory: where the lab-form seeks to *understand*, the test bed assumes understanding as a constant (through the embedded, always-on data collection in services like Map) and then seeks to iterate and develop greater technological and scientific understanding. If the urban laboratory is an epistemological consideration, Map's test bed is an ontological one. It is overt, presented as an attempt to 'solve urban problems'. Ken Greenberg provides a humanist gloss: in his words, the test bed is "a place to proactively try out these concepts in a real urban place, not an artificial *tabula rasa*".[lxxxix]

The urban laboratory and test bed concepts further imply the existence of urban science. Like any science, this takes as its foundation that a city answers to "an underlying code or logic, one that can be hacked and made more efficient — or just, or sustainable, or livable — with a tweak to its algorithms or an expansion of its dataset".[xc] The mention of the dataset is crucial—urban science is not just an exploratory regime, but a program enacted for the harvesting of what Bianca Wylie has called "city data", suggesting that the city is being examined.[xci] Of course, that data is actually information about urban residents, not the city itself.

There is a good amount of scholarship on the nature of 'scientism', or the belief that science is an apolitical or value-neutral attempt to assess the truth. This neutrality is valuable; Georg Lukács speaks of it as a refuge, where the urban sociologist could retreat to a fortified position "in the methods of natural science, in the way in which science distills 'pure' facts and places them in the relevant contexts by means of observation, abstraction and experiment".[xcii] Feminist critiques in particular have skewered science's mask of objectivity up and down the scientific process, pointing out that, when it comes to real life, empirical purity cannot exist: "cultural/political concerns enter into the epistemology, methodology and conclusions of scientific theory", and that these reflect the bias of the oppressive male and effectively providing an apolitical vehicle for a political and ideological viewpoint.[xciii] Sharon Crasnow warns that this shouldn't be interpreted as a call for science to become 'more perfect' or somehow 'feminine' in nature, but that a feminist or anti-capitalist science must be built out of alternative proposals to "traditional conceptions of objectivity".[xciv] Theodor Adorno mourned, in a similar fashion, that "the idea of scientific truth cannot be split off from that of a true society"—but that a true society was nowhere to be found within capitalist relations.[xcv] For the later Adorno (and the rest of the social sciences-inflected Frankfurt School), science was yet another ideological force, answering not to truth but to the hegemony of the technological arm of capital. Herbert Marcuse cautioned that technological development was neutral (which I disagree with), but nevertheless

employed to the benefit of those which own and control that technology—in our case, the capitalist ruling class.[xcvi] The twinning of empirical truth and capitalist reality is clear as day in Park's statement above; note that his urban processes are to be "profitably studied".[xcvii] Finally, Lukács, mirroring many of the feminist critiques of science, points out that "facts have been comprehended by a theory, a method; they have been wrenched from their living context and fitted into a theory".[xcviii] In Quayside, the environment is oriented from the get-go towards the extraction of facts; there is no living context from which they will be wrenched. Theory presupposes the facts which 'prove' it in perfect interlock. The test bed establishes the field in which facts are collected in the first instance.

The insidiousness of the laboratory approach becomes clear when one fully considers the abstract *value* of isolated facts on the capitalist market. By divorcing phenomena and lives from their concrete existence in favor of granulation and abstraction, the laboratory model further develops complexity into narrow faux-simplicity. The fetish for a 'rational analysis' "without regard to the human potentialities and abilities of the immediate producers" (who then appear merely as inhabitants of that 'labscape') "transform the phenomena of society and with them the way in which they are perceived".[xcix] Sidewalk's 'Map' performs exactly this operation, reducing the totality of life within Quayside to objects, vectors, and values, tracking movement yet unable to track the effects of that movement. The system is closed and perfect only on its own terms of capitalist scientific authority, an effect achieved by jettisoning subjectivity.

"Thus we perceive that there is something highly problematic in the fact that capitalist society is predisposed to harmonize with scientific method, to constitute indeed the social premises of its exactness", notes Lukács.[c] The ideological position of capital, its current existence, and its constant appeals to a rationality which is isomorphic with science all attempt to turn aside possible critiques of the structures of oppression. If capital is rational, any resistance is irrational; if technological progress is paramount, then, as Daniel Doctoroff said, the problem is that people are merely afraid of change.[ci]

This isn't particular to Sidewalk; it represents a particular precondition of the bourgeois attitude of technochauvinism best encapsulated simply as 'bourgeois science' and the ideological reasoning with which it approaches the world. The generic map, or cartographic practice in general, contains within it the same drives that persist in Sidewalk's Map; the only difference is the level of granular control the Map exercises is exponentially greater than the first grasping attempts to quantify the world into labscape could have ever dreamed of. The intentions remain the same, it is only the techniques that have evolved—whether colonizers have GIS or a sextant is irrelevant. The first rule of any cartography is the *presence of empire*. Whether this is a colonial-imperialist power or a corporation is almost irrelevant when intentionality is brought into play; in either case, technological (or scientific) quantification is brought to bear to construct a population of subjects. Donna Haraway explains that map-making "removes land (or anything else) from the status of mere concrete "place,"…and puts the land in the category of enumerated objective property".[cii] At the heart of the map is the requirement to define a territory in order to claim it. If necessary, the territory mapped is proclaimed *terra nullus*, or empty, (regardless of any indigenous claims or residency) thereby begging development on the hands of its new owners. J. Sakai, writing on the colonization of the New World, demonstrates that "the early English settlers depicted Amerika as empty—'a howling wilderness', 'unsettled', 'sparsely populated'—just waiting with a 'VACANT' sign on the door for the first lucky civilization to walk in and claim it".[ciii] Compare this with Sidewalk's proud claim that Quayside, and its expanded Eastern Waterfront site, constitutes "more than 325 hectares (800 acres) that represent one of North America's largest areas of *underdeveloped* urban land".[civ] Again, the declaration of *terra nullus* is a precondition of colonial development, rooted in a scientific project of the construction of subjects, stretching back to the initial conquest of North America. As Erica R. Edwards writes on Sylvia Wynter in her introduction for the new edition of Cedric J. Robinson's *The Terms of Order*, the hinge of underdevelopment is an aesthetic dilation on colonial ideas of "the human" as white, cis, het, productive—a colonizer.

This is not the place to mince words: Sidewalk's Quayside is a "colonizing experiment" (though written by another tech CEO, they are nonetheless true).[cv] Underdevelopment as a concept is immediately colonial in nature, implying territory ready for the taking, informed by a drive to uplift the land and imbue it with productive value. Before that value can be generated, the land must be known, plots drawn, ownership conferred. Before colonization comes the map that makes it all possible. But what happens when the map is Sidewalk's Map -- not just a document, not 'dead', but a real-time, persistent, active force in urban governance? The answer explodes the temporally-bounded character of the 'Age of Colonization' and instead begs for an understanding of colonization as an animating force which is still very much alive in the heart of power. Paul Virilio's concept of endocolonization elucidates Sidewalk's intentionality: not just a colonization of the land at the heart of empire, but a devastating technological atomization, in which social integers such as territory and bodies "are not so much replaced as said to be deformed to the point where their essential integrity is lost".[cvi] It is above these fragments and mutants—liquid space, aggregate populations—where Sidewalk finds its rule.

Fever dream materialism

The city has long been an ideological figment. We are cursed with nearly infinite examples of metaphorical form: the city is a system (Nick Land, Irving Wladawsky-Berger, Sam Palmisano), the city is defined by flows (Eric Swyngedouw, Maria Kaika, Gilles Deleuze and Felix Guattari), the city is an organic or human body (Patrick Geddes, Jose Luis Sert), as a computer (Paul Fedries, Sidewalk Labs), along with countless other novel characterizations. It is unclear whether these contribute to or a reaction against sociology's ambiguity about what a city actually is: is it to be defined spatially (as, quite literally, a bounded space riven with infrastructure), demographically (in terms of population density), municipally (if it's called a city, it's a city), or some combination of the three? These themes are well beyond the scope of this

thesis to discuss; however it is important to problematize Sidewalk's ideological arguments along with its historical ones, and to shed light on the epistemically messy arena into which the smart city enters.

Of these urban allegories, it is the identification of the city with the body that has the most staying power—likely by virtue of the fact that its example is most vivid and ready to hand. The conceptualization appears in extended form in Plato's *Republic*, in the famous analogy of the city and the soul: "The same account of justice must apply to both cities (justice is the right order of classes) and to individuals (justice is the right order of the soul)".[cvii] The body was, throughout antiquity, a model of the order of nature and a reflection of the impeccable logic of the cosmos: thus Plato's "demand that the city be unified is identical to the demand that the body and its extensions" and as such "the soul is a unity in diversity and is strictly parallel to the city".[cviii] The city must correspond, in the *Republic*, to both moral and physical perfection of the body and the soul.

The city-as-body metaphor then begs the question, what is this body? What are its faculties? By extension, when Benjamin Bratton's writes that in his essay "The City Wears Us", an "insane sentient garment" is now in production in the primordial stirrings of the smart city, can we read this through the city/body?[cix] "This clothing," he tells us, "combines different kinds of artificial intelligence, embedded industrial sensors, very noisy data, tens of millions of metal and cement machines in motion or at rest, billions of handheld glass-slab computers, billions more sapient hominids, and a tangle of interweaving model abstractions of inputs gleaned from the above".[cx] All told, this composes what Bratton refers to as a McLuhanesque prosthetic skin, a metaphorical universalization of the "largest sensory organ" of the human body.[cxi] Technology surrounds and ensconces the body, stitching the contours of the flesh and the morphology of the city tighter until they are inseparable. It is worth noting here the similarities in Bratton's metaphor of choice to a metaphor of technology present in Sigmund Freud, Marshall McLuhan, and Ernst Jünger: technology as a raiment of

immense power—in Freud's case, the prosthesis is divinity itself, extending the capacities of the human until they become godlike. What else could be the purpose of Bratton's concatenated swirl of technological apparatus and flesh?

Of course, Bratton's piece is not intended to be strictly a paean to techno-sensorial extension; his focus is (at least intended to be) urban in character. By his telling, the city is a metaphor for life itself, for the materialization of lived experience. Though what he is suggesting is, more or less, a fully automatic and developed smart city, he takes umbrage with that particular name. He labels the skin-city-garment the "plasmic city", which in his view differs from a smart city. The plasmic city, in his telling, disrupts "cycles of residence, work, [and] entertainment of earlier eras" (though it's unclear by what mechanism it does so), whereas the smart city only reifies these cycles in the service of "municipal omniscience and utility optimization".[cxii] While I agree with his sentiment—that the smart city stands to provide a technological sheen to traditional patterns of wealth accumulation, biopolitical domination, and force projection—Bratton can only realistically separate his plasmic city by invoking a toothless pseudo-politics, separated from power beyond the municipal level. If cities and their inhabitants were free, "rational actors" adrift upon the surface of the earth, he might be correct.[cxiii] But when actual politics becomes a consideration, the plasmic city loses its distinction from its smart cousin. Whatever new terms one invents in an attempt to evade the political, the question is always 'who or what is in control'? By twisting it like a mobius strip ("[a] person is not only a Virtruvian actor at some phenomenological core who wears the city; he or she is worn as well. We are also the skin of what we wear"), Bratton tries to evade questions of control as well as ownership and production, rehearsing a utopian cyberpunk non-political technochauvinism *par excellence* in which the freedom to share or accept information, to participate in networks of communication, stands in for actual freedom.[cxiv] Skin becomes a technological platform, made up of "components and sub-components across applications".[cxv] Who owns that platform, and what are their intentions? What good is it to me that I wear and am worn by the city if our tangled skins are nevertheless held bunched in the collective fist of the same masters? How

curious that liquification takes place through the addition of computation, through an avalanche of ever more discrete sensorial artifacts! The plasmic city prioritizes the total technologicization of urbanism above and beyond standard conceptualizations of the smart city. The smart city is in its DNA, but for Bratton the smart city is limited by governance of the old type. In his own formation, governance disappears because his idea of plasmic urbanism has no way to address it. The implication is that the future city is a design problem.

The plasmid city offers a fashionable reproach to critics (such as myself) who would perhaps detect in his pleas for greater technocratic extension mere libertarian 'disruptionalism' wearing an ethically vetted uniform. Bratton shifts the conversation from semio-technic music to a discussion of greater democracy by invoking the possibility of alternative "intelligences" that inhabit the plasmid city. "The presumption that of all the information-rich entities in the world," Bratton admonishes, "the hominid brain should be the primary if not exclusive seat from which prostheses of AI would extend is based in multiple misrecognitions of what and where intelligence is. In such a circumstance, intelligence does not only radiate from us into the world, it already is in the world, and in the form of information (which is form) it is the world".[cxvi] Bratton updates von Neumann by claiming not only will *things* self-replicate, but that they deserve citizenship by virtue of their capability of world-sensing and thus information-processing. Which is on the face of it, a fine preposition—and one I can't particularly say that I disagree with. But what is the point? Do these reproducing machinic intelligences yet exist? Will they anytime soon? Bratton is not interested, rather preferring to espouse an agonistic *Lebensphilosophie* with the intention of making his argument purely ethical: 'these fantastic chimeras', he seems to be saying, 'must at the same time be our equals'. Nowhere is it discussed that the only entities which would give us these are the economic and political institutions of the market and the state, and thus his non-hominid intelligences are just as flawed, if not the aggregate of all flaws, of the hominids themselves (one can't help think of 'corporate citizens'). Bratton's

individualism (here couched in democracy) is complete. Consider Lukács' words to the 'ethical' socialists of his day:

> "For the individual, whether capitalist or proletarian…the world can only be understood by means of a theory which postulates 'eternal laws of nature'. Such a theory endows the world with a rationality alien to man and human action can neither penetrate nor influence the world if man takes up a purely contemplative and fatalistic stance".[cxvii]

Bratton bends away from this accusation slightly. Instead of stating bluntly that the world is endowed with alien rationality, he proposes that at one day it *should* and *might be*, and more importantly, posits that the plasmic city may just be the inheritor of the revolution of this new individualism. Adopting a position on the natural world that may be more analogous with the call "if nature is unjust, change nature!" from the *Xenofeminist Manifesto* by Laboria Cuboniks,[cxviii] or a techno-centric wrinkle to Donna Haraway's famous invitation to participate in "kin-making" or "kinning" ("kinship as a non-genealogical mode of relation that is based on response-ability and becoming-with, extending beyond Anthropos and humanist accounts of relationality").[cxix] This vitalism smuggles in, by way of the supposedly apolitical sphere of individual ethics, a worldview which reimagines humanity as a lost particle drifting in a hostile, Hobbesian world. The plasmid city is a solipsism run amok, dressed in the thin tatters of radical self-knowledge (empirical vs. experiential) and makes a colonial, revanchist weapon the long-overdue attention in academia paid to the value of indigeneity and folkways. It mutates these genuine political concerns from the subaltern into a caricature, and in doing so, reinforces the colonial perspectives of *natura naturans* that inform the basis of normative supremacy. This process of naturalization is likewise acute in Jane Bennett's *Vibrant Matter*, in which she states "…that June morning, thing-power rose from a pile of trash. Not Flower Power or Black Power or Girl Power, but *Thing-Power*: the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle".[cxx] This, to paraphrase Flavia Dzodan, bears the imperial relationship of coloniality in its

blood, as it places *Things* immediately alongside the rights of women or people of color.[cxxi] The rise of "things" (rendered in philosophy and related disciplines as 'object-oriented ontology) shifts the focus away from actual violence and struggles of liberation to insist that we must return to a vitalist conception of a living world which must first be liberated from the heuristical impositions of Enlightenment science. Everything becomes a subject and placed on an even footing—no matter how sickening it may be to claim that a pile of trash deserves consideration just as much as the rights of oppressed peoples. (Digressions into Lacanian constructions of subjects and subjectivity tend to ignore this simple calculus.)

Bratton performs a similar colonial compulsion: by demanding the extension of citizenship to as-yet-unseen non-hominid intelligences, his plasmid city is ordered against politics: struggle is over, and politics dispensed with as *everyone* and *everything* now gets a voice. Following Kant's "bourgeois sphere" of ethical actors, Bratton insists upon a maximalization and subsequent materialization of *communication*, or for communication to supersede and blanket the real world and its viscous politics. It is telling that Bratton employs the unpigmented 'skin' as his sensorial organ of choice to illustrate the plasmid city, with all of its obvious racial overtones. In Bratton's or Bennet's ontology the human race is trammeled into simple 'hominids' (a loose amalgamation of individual subjects which have been 'de-identified', their class, racial, gendered etc. identities removed) in order to be foreclosed on as a political subject. Plasmid city politics is for the new humans, and our job, according to Bratton, is to construct their agora. His declaration that the "hominid brain" must be cast down from prominence is an explicitly political statement designed specifically in order to avoid answering whether that brain belonged to the oppressor or the oppressed, the colonizer or the colonized, and so on. His demand for an explosion of diversity first requires the collapse of existing diversity into a single monolith. It is only then, from a eugenic foundation, he can make his case.

In Quayside, the intelligent 'sensorium' is similarly anonymized, at least in theory. In fact, Sidewalk takes pains to point out that data will be wholly "de-identified".[cxxii] This is a nice phrase, but fundamentally meaningless from the perspective of the urban condition or especially data governance. No true best practices really exist. This likewise begs the question as to how anonymous that data will be: will race, gender, or any other metrics of oppression be present, tied to individual citizens? How will these be acted upon? It's not hard to speculate. Likewise, the liquidation which Bratton preaches will be available at a 'future stage' of the smart city's development necessarily recapitulates the old, tired arguments that attended the rise of the so-called "post-industrial", which will be examined in chapter 3.

The next chapter will begin to discuss the true form of the smart city, not as a technochauvinistic fever dream, but for its lived political reality and economic value.

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Intelligence and politics

The fluidity discussed in the previous chapter is just one valence of Sidewalk's campaign of destabilization. At a higher level, spatial fluidity corresponds with an ideology of disruption—Silicon Valley's own adopted catchphrase, which in the smart city finds a potential avenue of expression. Disruption, like nearly everything Silicon Valley does, is a feint to obscure the inherently political content of its work. Of course the ruling class has political aims and a class consciousness of its own! For example, in a 2011 interview with Peter Thiel, the libertarian-cum-fascist billionaire petulantly lists his favorite words—'disruption' one of them, 'risk' the other—and his least favorite, 'politics' and 'ideology' among them.[i] The technochauvinistic, libertarian masters of the smart city adopt the same posture, betting on disruption, or , once the dust settles, the world will be remade in their image and the profit streams will be wider than ever.

An analysis of the political categories of the smart city is difficult to begin, if for no other reason than "the body of thought at its core remains distressingly short on specifics".[ii] Though the smart city is a technological artifact, artifacts undoubtedly have politics, to answer Langdon Winner's famous question. However, Winner's own work is also unable to truly identify the contours of the problem. "The theory of technological politics," as he explains his field, "draws attention to the momentum of large-scale sociotechnical systems, to the response of modern societies to certain technological imperatives".[iii] While this seems to be a reasonable terrain for a field of study, Winner later continues: "societies choose structures for technologies that influence how people are going to work, communicate, travel, consume, and so forth over a very long time".[iv]

This statement is insufficient, and just as apolitical as Thiel's fetishization of disruption for its own sake. At no point does Winner ask 'how do societies choose?' His commitment remains arrested at the level of the particular—that is, focused on particular technological artifacts and their effects—and not on the relationship between technological artifacts and the specifically capitalist character of societies. As a result his

discussion of society is so abstract to be quite useless—reduced to a computer, in which all members take a vote on technological advancement—either yes or no. Though Winner is not shy about pointing out, say, the role of a mechanical harvester in destroying agricultural communities, he seems incapable of stating the obvious: societal choice is not undertaken consensually, it is not something that we, as a civilization, are all grasping towards with each other's best interests in mind. There are individuals, governments, and classes that steer the machines. It is crucial to avoid the seductive tendency Winner falls for here, wherein he centers and thereby fetishizes technology as an abstract driver of society, the two locked into a relationship of high abstraction and imbued with the logic of the ontology of becoming over a complex, dialectical appreciation of being.

This would be well and good were it not for the unfortunate fact that technology does not just 'happen', it does not create itself, it does not grow into being. Lukács attacks Winner's position as one that seeks to "find the underlying determinants of society and its development in a principle other than that of the social relations between men in the process of production" and thus give to technology a "far too determinant position".[v] In Winner's abstract model, technique (or technological development) determines society itself. Though Lukács does not, of course, dispute that technology "retroactively influences the productive forces", and therefore social relations, Winner's undue emphasis on the technical remains wanting when made to engage with the political.[vi]

It is precisely the type of crude techno/political analysis—in which technology continues its dizzying ascent and society is left to react to its moves—that predominates in analysis of the smart city. On the surface, this does in fact seem to be exactly what is happening; Bianca Wylie and other experts continuously make the point that even a data governance approach is unprepared to deal with technological advancement. In addition, technology is often presented as self-governing or as a closed system which answers to its own laws. The bulk of what has emerged over the course of Sidewalk's long conceptualization period is "self-interested press releases, fawning blog posts and

[the] lite reportage" which will sometimes allude to political realities but never describes them, instead content in taking the purveyors of technology at their word.[vii] It the face of Silicon Valley 'Californian' non-ideology, the work of political analysis looks a lot like an attempt to arrest progress. No one wants to look like a Luddite. Once again, in turning away from the expressly political, technology recongifures even critical arguments in its own terms, and most commentary stays within this carefully delineated zone. Thus the explosion in discussions of digital privacy and "surveillance capitalism" that abound, taking aim at entities like Sidewalk and lambasting them for their failure to uphold the individual as the sovereign quanta of liberal/democratic politics. While these critiques are essential, they are in a sense the leading edge of the razor, and focusing on surveillance and privacy as isolated political activities obscures the vast scope of Sidewalk's project. Instead, we should be asking what it means when Silicon Valley "serves as landlord, utility provider, urban developer, (unelected) city official, and employer, all rolled into one?"[viii] To put it another way, what happens when the technological is considered not as a rarified force, but a political project?

What we do know

At this early stage in Quayside's existence, there is precious little to go on. However, there are some core ideas: first, there is the "proposed transformation of civic infrastructure such that it can constantly respond to the data it gathers from the public realm", as discussed in the previous chapter.[ix] There is an additional wrinkle to this data collection; namely, that the data collected is not just held by Sidewalk/Alphabet, but is then *sold* to third parties, who are "invited to design apps and other marketable solutions that make use of all that gathered data".[x] This statement may inspire either revulsion (what a breach of privacy! what a betrayal of civic stewardship!) or excitement (I imagine someone out there may be excited by a city that behaves like an app store) but, again, the argument is not technological—it is political. What should be soberly accepted here is that Sidewalk's app-based platform urbanism forces a reconsideration the notion of sovereignty altogether. *Sovereingty*, not surveillance, is the

largest political consideration with respect to Quayside. "A privately controlled 'smart city' infrastructure", former chairman of Research in Motion Jim Balsillie wrote in an op-ed for the *Globe and Mail*, "upends traditional models of citizenship because you cannot opt out of a city or a society that practices mass surveillance".[xi]

Building the society of control

Techno-sovereignty is a concept which contains two contradictory poles: a passive and an active one. A passive sovereignty would be the most common—a desire and demand that one is not watched, that there is a reasonable expectation to privacy and informed consent of data collection. Justifiably, this is the predominant focus of most critiques of Sidewalk, as it threatens to upend even the paltry degree of privacy available in today's social life. However, there is also active sovereignty, which I define as the continued existence of autonomy within what is widely, in legal terms, discussed as the "exception". Sidewalk's RFP offers some clues with respect to what they are thinking along these lines. Let us return to the 'urban dashboard', or Digital Layer, in Quayside discussed in the form of 'Map' in the previous chapter, but focus this time on another one of the four principles, called simply 'Model'. Like Map, it is another high-level data processing system, which takes up data from Sense (or, in non-utopian marketing terms, the sensorial network which engage's Quayside's 'physical layer') and develops it into an intelligible simulation with futurecasting capacities.

"Combined with data from Sense, Model can provide a robust decision support system by simulating the next 5, 15, or 30 minutes of neighbourhood activity to anticipate problems and suggest remedial measure before they amplify. At weekly and monthly time scales, facility managers can simulate changes to infrastructure and policy to improve operational efficiency. *Operational planning blends into medium- and long-range planning*, which can be used to design the growth of the neighbourhood and achieve strategic objectives."[xii]

Sidewalk only offers illustrations of Model at work in a passive context, in which administrators constantly monitor conditions to achieve an optimum spatial or infrastructural consideration, and are given the ability to guage the effects 'policy' changes will have on 'operational efficiency'. The parallels to Map are clear; in both instances a direct top-down authority is dissolved in favor of a responsive, minute by minute planning. The naïve, expert-level application of operational efficiency is, however, only the tip of the iceberg.

Model is oriented around the anticipation and mediation of "problems", Sidewalk proudly states. But what problems are these? Are they simple issues of an infrastructural nature, such as a fire, flooding, etc.—or would these also encompass a problem of, say, a strike? Sidewalk mentions offhand, *in an image caption* (not the main body of the text!), that the Digital Layer's information would be potentially made available to firefighters "during a crisis".[xiii] "Emergency-only permissions," it elaborates, could allow for responders to have "*unrestricted access to data at a crisis location*".[xiv] Sidewalk's use of 'firefighters' in this case study begs the immediate question: what about law enforcement? It stands to reason that police forces would likewise be given enormous temporary powers in order to carry out their jobs—be it searching for a suspect or quelling a disturbance. The question is then, of course, what trips the emergency threshold? A burglary? A suicide threat? A protest? Does the granting of these emergency powers entail the simultaneous limiting of civilian ability to access the network for purposes of operational security?

Whether isolated to Quayside, or perhaps on loan in some diminished form throughout Toronto, one may imagine the terror that a cop fitted out with a gun and a prosthetic command of the urban sensorium, along with the "emergency" mandate to use both, could easily bring to bear in such an environment. Residents would find themselves at the mercies of the twin powers of omnipresent data and urban-operational modelling matched by the insane efficacy of a police force from which there is no escape. Perhaps an oversight, it is nevertheless grimly portentuous that the I-3 Toronto zoning category

'Jails', though (thankfully) not absorbed into the Loft multizoning use category takeover, nevertheless persists quietly in Sidewalk's "Example Proposed Use Groups".[xv] Try not to think too much about the smart gaol to come.[xvi] Marx's statement—that the police "are not the representatives of a civil society which administers its own universal interests in them and through them" but are rather "the representatives of the state and their task is to administer the state against civil society" holds true; after all, the form of the repression and the intention upon which it operates remains unadulterated, despite the technological armament it may assume.[xvii] Robocops are still cops.

Undoubtedly, Sidewalk sees the provision of emergency powers on the fly to law enforcement responders to be a net good. This is absurd. There is no reason to expect that Quayside's security and enforcement network, whatever form it may take, would not operate in any more enlightened way than a less technologically abetted one. In 2016, according to the Ontario Human Rights Commission's review of the Toronto Police Service, black people were the victims of "seven out of 10 cases of fatal shootings", despite only making up 8.8% of Toronto's total population.[xviii] The existing bias of predictive policing technologies like Palantir and PredPol is the subject of a burgeoning body of work; beyond its fascist usage possibilities (such as being used by the United States Immigration and Customs Enforcement agency at the US-Mexico border), researchers such as Rashida Richardson, Jason Schultz, and Kate Crawford at the AI Now Institute are finding that the data fed into these systems often was collected during periods of known and documented bias within the data-collecting department.[xix] Facial recognition software is often flat out wrong—96% wrong, in the case of software employed by London's Metropolitan Police—but recuperates the racist biases of the institutions that use it, and what's worse, can lead to false arrests and other disciplinary ramifications.[xx] The answer to this bias is not to continue apace nor to imply a future police force which will be even more viciously overpowered. Again, Sidewalk elides these questions. It is a mystery as to whether this is because it has no answers or is merely uninterested in them. The racheting effect at work here—in which

'humans' become data (reduced to *homo sacer*) claims, if nothing else, a universality in its procedure to "make numbers out of the weight and height of bodies" however, as Alexander Weheliye's *Habeas Viscus* and its extensive racialization of Agamben points out, when people are reduced to statistical tables for the purposes of quantification, non-white people are reduced *more*.[xxi] The liberal insistance that within its "universe there is a formal equality for all men" is utterly hollow from the beginning; the successive layering of capacities of punishment only serves to highlight this further.[xxii] Sidewalk's particular advancement in this field—the creation of its sensorial-analytic Digital Layer, allows not just for the further extension of carceral control into social life, but for pick up speed and to happen more efficiently.

The control of society

Sidewalk's 50 million USD "pot sweetener" offered to Toronto for "joint planning and pilot projects" further liquidates the standard conception of sovereignty. While clearly a major gift to a city (regardless of whatever strings may be attached), the deeper considerations of this money are troubling. In 2018, Sidewalk's parent company Alphabet reported $92 billion in cash reserves; in the same year, Canada's *national* reserves totaled $82.5 billion.[xxiii] What may seem like a way to sweeten the deal is perhaps better thought of as hush money, or the opening salvo in a new chapter of a long line of private 'investiture' in urban governments. Rarely does the money flow from private to public entity; consider the now-scuttled Amazon HQ2 in Long Island City in New York, where the city offered Amazon $1.7 billion in grants and tax breaks.[xxiv] "A massive infusion of cash and digital technology to propel an industrial moonscape to the vanguard of digital urbanism has been intoxicating for the city's political elite," reports John Lorinc.[xxv] But Bianca Wylie, perhaps the vanguard of anti-Quayside resistance and a longtime data governance expert, lays the stakes bare in her December 2017 article for the *Globe and Mail*. "Smart cities are largely an invention of the private sector—*an effort to create a market within government*…The business opportunities are clear".[xxvi]

What is happening here goes far beyond the arrival of technology corporations in a governance role. In *Capitalism: A Ghost Story*, Arundhati Roy describes the contemporary political landscape of India, which is experiencing a massive "Gush-up" as a counterpoint to the well-known conservative trickledown bromide, in which wealth runs upstream and is increasingly concentrated in the already wealthy. We can see through her account the historical truth of the dialectical maxim that quantity becomes quality; in this case mirrored in the "Gush-up gospel" the "more you have, the more you can have".[xxvii] Roy's account of an economically explosive India nevertheless rings true in Quayside: "As Gush-up concretrates wealth onto the tip of a shining pin on which our billionaires pirouette, *tidal waves of money crash through the institutions of democracy*".[xxviii] This tidal wave is devastating, but it is also slow, evoking a counterrevolutionary inversion of Rudi Dutschke's strategy of "*der lange Marsch durch die Institutionen*" or the "long march through the institutions". It is now an insurgent new technocrat who undergoes this long march, restructuring those institutions as they sweep through, propelled by their money. They are learning what is necessary and, most importantly, what can be eliminated. Sidewalk has already begun its march and begun to slate executions for 'unperforming' or 'restrictive' elements of the state (most notably, land planning and zoning altogether, which Sidewalk proposes to "review" against a criterion of "performance" to allow the fullest liquidity to its Loft system).[xxix] When, if at all, this wave is met with resistence, it is too late—the money that swamped the institutions is now the only thing holding them together. This became abundantly clear on March 7th, 2019, when Sidewalk CEO Dan Doctoroff threatened to pull out from the project entirely due to percieved failures on the part of Toronto to supply mass transit to the project.

The balance of power expressed here is clear: it is Sidewalk that is making demands of the city; the client role has been inverted, municipal sovereignty has in some sense capitulated. The technical-rational logic of Sidewalk has come to either supersede or assume the posture of the state. In a recent leak, it was revealed that once Quayside

'goes live', Sidewalk "expects a share of property tax and development fees" collected, and the that it also intends to be renumerated further for its services, which it claims will be responsible for "a share in the uptick in land value on the entire geography" of Quayside.[xxx] We are only now seeing that in Quayside (and by extension, smart cities taking it as a model), being put in charge is not something that ends at the boundaries of the site—it reaches both down into the citizen and beneath the street, and up into the most rarified halls of government.

In the spirit of Soviet jurist P. Stuchka, who wrote that "the state can be turned into a free state without turning man into a free man", we may say that the state can be turned into ever more novel forms, while the fundamentals of domination remain relatively the same. Governance is to undergo an "elegant capitulation…to the ultimatum of the Invisible Hand".[xxxi]

Quayside's bid for political control is shaping up slowly, typified in its CEO Dan Doctoroff. First appearing on the scene as a private equity investor in Manhattan in the 90s, he proposed vast redevelopment on the west side of Manhattan; former New York City mayor Michael Bloomberg later made Doctoroff the deputy of economic development for the city.[xxxii] Doctoroff continues his work in Sidewalk, bringing money to bear in urban decision-making. In interviews he adeptly sidesteps the conversation by eliminating mention of anything too far afield, or discussing the particulars of the relationship between Sidewalk and Waterfront Toronto either now or in a future in which Quayside exists. His remarks usually hinge around what he calls the "essential catalyst", a instigative role which he claims Sidewalk Labs seeks to occupy. The catalyst, he says, is there to enable "the creation, not otherwise possible, of a new neighborhood…through innovative approaches to everything from housing construction, to energy use, to transportation — showing how to solve real urban problems not just here in Toronto but around the world".[xxxiii] Gilles Châtelet can be envisioned speaking directly to Doctoroff when he writes, "[y]ou want to capture the creative powers of chaos—just what we'd expect of Gardeners of Creativity—and to

replace the big political choices with a *cyberpolitics* that would allow solutions to emerge graciously".[xxxiv]

Solutions emerge most graciously when they're someone else's responsibility: in Doctoroff's terms, the catalyst sets out the rules of the game; it is then up to third parties, "partners", and citizens to "build out" the remainder within this framework: "in our vision", Doctoroff writes, "the building — and much of the innovating — will be done by others".[xxxv] Sidewalk will, with its immense resources, get the ball rolling, and then the city-platform will take care of itself. Better than a catalyst, we should call Doctoroff and Sidewalk what they are (or what they aim to be, anyway): administrators.

In their administrative role, Sidewalk intends to carefully establish parameters and delineate possibilities in Quayside—not through top down administration (nothing so crass!), but by defining the entirety of the field of possible actions. The conceptualization of Quayside as an IDEA district (IDEA being an acronym for "Innovative Development and Economic Activation") points directly to Sidewalk's intentions in experimental governance: an IDEA district would be created by the City of Toronto "corresponding to the project geography, to create the governance necessary to implement the Project".[xxxvi] Sidewalk carefully notes that Waterfront Toronto would oversee Quayside in this formation, but does not clarify the extent of that oversight. Nevertheless, this hardly matters; Waterfront Toronto may assume control in name but the area, custom-built to Sidewalk's specification, would be uncontrollable by anyone else by design. Their administrative capacity would be total in all but name.

How would this play out? As Herbert Marcuse explains in his 1944 essay "Some Social Implications of Modern Technology", freedom within this field highly limited, though does not appear as such. He gives an example of a highway through a landscape to illustrate this point: the highway conditions a 'best' or 'easy path' for travel—it is not technically the only choice, but is in many ways the best. Freedom is presented instead as a series of choices, and success as the fulfillment of the conditioned environment; it

"is confined to the selection of the most adequate means for reaching a goal".[xxxvii] With respect to Quayside, this means that the catalyzing-administrating role of Sidewalk continues to exercise absolute control as owner of the "constant capital" of the neighborhood (an important consideration we will return to later) while at the same time offloading risk to partners who, in working within Sidewalk's parameters, reproduce those same parameters at the same time they attempt to carve out a distinct niche for their own capital projects, thus compounding the illusory freedom offered to the citizen. At no point is Waterfront capable of intervening in this under the IDEA district's current proposal, as decisionmaking occurs in the relationship between Sidewalk and third parties alone. These partners appear as "deputy-capitalists", mediating the link between citizen and Sidewalk, functioning here as administrator and landlord.[xxxviii] As the long development process wears on, it is becoming clearer that the role of the deputy-capitalist third parties will only increase—a quick look at the changes in Sidewalk Toronto's February 14th, 2019 Project Update presentation document makes this completely clear. Over the course of the project, the number of deliverables fulfilled by Sidewalk vs. those contracted to a third party has swung massively towards the third parties, to the extent that Sidewalk is now the exclusive provider of only "Ubiquitous Wi-Fi" and "Standardized Mounts and Power", along with ambiguous applications for "Mobility Management" and "Energy Optimization".[xxxix] Three core components—the "High-Resolution Map", "Traffic Volume Sensors", and "Open Data Hub"—have all been given over to third parties. Yet Sidewalk's position as administrator remains uncompromised: the presentation warns that "[i]nterchangeability requires standardized interfaces and formats".[xl] Of course, the sole provider of these interfaces and formats remains exclusively Sidewalk; as such, the ability to decide what happens and when remains exclusively theirs. Governance as such instead becomes a capitalist relation, answering to the logic of the commodity; third parties are not electable but rather are selected on their ability to maximize profit value.

The new state of exception

Bianca Wylie notes that the entire process thus far, involving both Sidewalk and its governmental partner Waterfront Toronto, has been defined by the deployment of "weaponized ambiguity" at the institutional level.[xli] Confusion has been sown by Sidewalk Toronto as a feint; while details have been slow to appear and contradictory in their implications, the requisite moves for the establishment of Sidewalk as Quayside's administrator have been quietly undertaken. The publicly accountable aspects of Sidewalk's relationship with Toronto have slowly disappeared, foremost being the responsibility of Sidewalk with respect to its data collection, which has been 'offshored' into an independent "Civic Data Trust". Bianca Wylie skewers the idea, saying the move has "tossed all responsibility for data issues over the fence…How will that work? No one knows!"[xlii] To repeat the my words above, the actual format and oversight of this Civic Data Trust barely matters; it can be thought of as yet another third party, set up to run interference for the messy ethical terrain which Sidewalk is uninterested in or incapable of exploring. Against this profound confusion and retrenchment of its own power, Sidewalk offers feeble moves towards "digital transparency" in the form of signage, which recontextualizes the issue of data not as a political question but a design problem. Jacqueline Lu, Associate Director of the "Public Realm" at Sidewalk, writes that "[w]e strongly believe that people should know how and why data is being collected and used in the public realm, and we also believe that design and technology can meaningfully facilitate this understanding".[xliii] Once again, Sidewalk's role as administrator remains undisturbed, and in fact *consolidated*, as it closes the loop on a problem of its own creation. The composition of a vast data collection apparatus is a question of political economy, not of design. Understanding is not what is at issue here. Power is.

The administrative character of Sidewalk subverts the typical political process and public requirements of a company in its position. At this point I would like to introduce the concept of the state of exception, most famously explicated by Carl Schmitt and later

Giorgio Agamben. When the phrase the state of exception is used here, this is not to discuss the events in Toronto at a far, abstracted remove, but rather to instill coherency, to establish an epistemic framework by which the mutilations of Sidewalk can begin to make sense. Again, the immediacy of this problem is stated clearly by Wylie: "we don't have rules to manage private-sector actors that want to introduce their hardware and software into the planning and delivery of public services," she says, "we don't have the knowledge".[xliv] This is an political, theoretical, *epistemic* problem—not an urban one: "cloaking this work in urbanism is a betrayal of motive".[xlv] Not only is this a knowledge problem, but an opportunity to explicate the nature of the capitalist state in general, which reveals the collusion between Waterfront Toronto and Sidewalk to be, more or less, business as usual; following both Marx/Engels and Antonio Gramsci, the state is revealed to simply be a "committee for managing the common affairs of the whole of the bourgeoisie",[xlvi] masquerading as though the state enjoys the a general or civic interest.[xlvii] This idea will be returned to and developed further at the end of this chapter.

Carl Schmitt's state of exception is a concept that defies rigorous definition. Helpfully, Schmitt tethers the state of exception to sovereignty with his much-discussed opening to *Political Theology*: "Sovereign is he who determines the state of exception".[xlviii] In so doing, the state of exception appears as a weapon to be deployed at the behest of power—in particular, the absolute power of the sovereign. This power has been designed from the get-go to be firmly in the hands of Sidewalk Labs, but it has appeared not through the suspension of a body of legal norms, but through the methodical creation of a world attuned to Sidewalk's every administrative demand—to paraphrase to the Marcuse essay from earlier, while design, efficiency, and convenience constitute Sidewalk's public face, its work to mechanize and standardize Quayside has been undertaken in order to award itself sovereign power. This flies in the face of Schmitt's assertion that the state of exception is a "borderline concept", associated likewise with a "borderline case" (a breakdown in law), which requires extraordinary measures to overcome.[xlix] Giorgio Agamben writes in *State of Exception* 70 years later

that the state of exception remains evasive, lurking at the absolute limit of juridical and legal thought: "the state of exception appears as the legal form of what cannot have legal form".[1] A key difference between Schmitt's and Agamben's concepts is that the figure of the sovereign as traditionally understood has disappeared. In Quayside, I believe that Sidewalk's activities will constitute the neighborhood as a territorially bounded state of exception of unlimited duration, which does not require the removal of established legality but sweeps away law as a precondition to its arrival. My reasoning is quite simple: in becoming the sole agent within the IDEA district which can 1) both give and take power, Wi-FI, and other amenities, 2) which directs and establishes parameters for their usage in the form of standards, and finally 3) is directly involved with dictating the terms and powers of its own administration, Sidewalk has created for itself a position in which it has effective control.

The introduction of weaponized ambiguity by Sidewalk into the governmental structure of Ontario constitutes an attempt to hollow out an autonomous freehold in various spheres which will devolve control over the Quayside project site, if not the Eastern Waterfront in general, to Sidewalk. It has accomplished this through a covert insertion of itself via appropriate channels (submitting to a Request for Proposals) and consistently elided recognition of its intentions by focusing at exactly the point where Schmitt, in his imperial, 'total state' conception of legality, is blind, and exclusively concerned with its own reproduction, or the conditions which allow its continued existence. "A jurisprudence concerned with ordinary day-to-day questions has practically no interest in the concept of sovereignty. Only the recognizable is its normal concern; everything else is a 'disturbance'".[1i] Schmitt here avoids the fact that the recognizable is often outrageous in practice—the oppression which is made routine, the brutality which is made laudable, the power which makes subjects out of people.

Sidewalk's proud assertion that its Digital Layer to be able to anticipate and turn aside any 'disturbance' constitutes a statement of intent. In Sidewalk's demands for autonomy within the IDEA district, or through suspension of fundamental aspects of

the municipal framework, it is developing a preinstalled exception, characterized by Schmitt as "principally unlimited authority, which means the suspension of the entire existing order".[lii] Again, Sidewalk's authority will be unlimited, if its intentions are carried through; though insidiously, this will be in practice if not in name. Think of this as a soft coup. Sidewalk's 'forces' are the exact technological armature and attendant standards which they have promised to deliver, and the continued public-facing campaign of obfuscation, moving targets, and design-centricity it has carried out is only an expedient to get to the point of no return.

It is not Sidewalk's intention that the state, and needless to say order itself, would collapse; rather it pushes for them to quickly and quietly change hands. All it takes is one decision, or rather the lack thereof, to cede control of Quayside to Sidewalk to do as it sees fit: the IDEA district framework, presented as an "Innovation Framework" agreement between Sidewalk Toronto and Waterfront Toronto, described as "[a] set of regulatory and policy tools…designed to foster the necessary conditions for delivering on the promise of the MIDP [the long-awaited Master Innovation and Development Plan] and using its success as a catalyst".[liii] The content of these 'regulatory and policy tools' is thus far unknown, and one should probably not hold their breath for further explication. These will, I would guess, remain a confidential agreement for the most part between Sidewalk and Waterfront. They could also very likely cement Sidewalk's role as sovereign administrator, over and above the technological lock-in of constructing the IDEA district as a walled garden.

Sidewalk has been engaged in a multipronged push (putsch) along ideological (technochauvinistic), economic (the essential catalyst), political (the Innovation Framework), and by 'engaging' public opinion (in a series of roundtables) in a way that exclusively addresses the form and ignores the subject of the work and centers the novelty over rigor. The combined goal of this is to establish the IDEA district, in which the technological armature overdetermines political and social existence, leaving Sidewalk to proceed as it sees fit. The legal norm of Toronto may well be "destroyed in

the exception"—at least locally.[liv] The novelty of the situation takes over: "There exists no norm that is applicable to chaos".[lv]

Additionally, Sidewalk has inserted itself into the process of governance at a time and in a place where the role of data and private companies in governance remains an undertheorized field, riven with potential lacunae to exploit. Examples of how Sidewalk pushes for the arrival of this (non-)decision are not hard to find: "The collection and use of this data present some problems", Bianca Wylie admits, speaking of Sidewalk's Digital Layer.[lvi] There is a fundamental limit of supervisory comprehension here. "For one thing, we have not decided if or how the data collected through these sensors and physical networks should be used or shared. We haven't discussed how the value of our data should be defined and managed".[lvii] There is precedent for the decision of exception to be found in Special Economic Zones and their ilk; as Keller Easterling explains, the SEZ may be thought of as "extrastatecraft—a portmanteau describing the often undisclosed activities outside of, in addition to, and sometimes even in partnership with statecraft".[lviii] The SEZ shares smart city DNA; it opens up a juridical hole which is then plugged with technological and economic concerns. Many SEZs and smart cities share the same compulsion towards wealth maximalization (required by the catalyzing injection of private money), to the point where differentiating the two can become difficult. However pure the cascading decision, extrastatecraft is almost always the state of exception under another name when considered spatially. After the destruction of norms, extrastatecraft steps in to describe what remains on the ground, which even when it constitutes an exception remains bogged down, tethered to the previous rule of law by spatial 'memory'—the built environment retains traces of previous regimes and systems of ownership. Quayside, by distinction, is a vast industrial brownfield upon which very little remains. On top of this, Sidewalk's provision of standards and basic infrastructure can come to inscribe its own vision of urban space; the maintenance and control of this vision necessarily culminates in Sidewalk's administrative control, masquerading as humble stewardship.

Sidewalk's power depends on an agreement with Waterfront; as of the time of this writing no official plan has been furnished by Sidewalk (though one is purportedly coming soon, once the long-awaited "Master Innovation and Development Plan" is released). To date, no other documents other than agreements with the tripartite governmental structure it is contracted with govern its behavior; otherwise it enjoys near-total latitude and has from the beginning. Besides, Sidewalk's project scale is, for all intents and purposes, limitless: "Sidewalk had bid only for Quayside's twelve acres, but officials on both sides have continued to stress that WT [Waterfront Toronto] is willing to let Sidewalk propose ways to deploy its infrastructure-based technologies 'at scale'," notes John Lorinc in *The Baffler*, with the explicit idea that Quayside will "serve as a kind of giant real-world petri dish" to develop a "business model for selling these technologies elsewhere".[lix] "If the RFP is about scale and data and systems and pilots," Bianca Wylie echoes, "its impact will not be bounded by the 12 acres. If the discussions about infrastructure intersect with the City of Toronto's budget, and of course they do, again the City writ large is impacted".[lx] The way in which Sidewalk is comporting itself in Toronto represents an opening onslaught in a greater war of private technology companies against the tottering ruins of any governmental structures which may delay it. Increasingly, technological development and infrastructural buildout seems to be at odds with the state—if the state can reckon with it at all. The experience of Sidewalk in Toronto is, in many ways, a stress test, running interference for technogovernance project which may only be beginning. The technological turns political.

Smart political entities

The veiled political arguments Sidewalk is making in Toronto depend on the basic machinery of bourgeois, capitalist society. Though throughout the previous discussion, I frequently referred to Sidewalk's technological capacities as the vehicle for its consolidation of political control, this is in some ways simplistic (though not less true). Behind the technological argument sits an old argument undertaken in a new arena. Technology here appears as a weapon weilded by the ruling class: the bourgeoisie-

capitalists. Sidewalk, though it carefully presents itself as "[c]heerful, young, faux-progressive, hip, making this all seem fun and harmless", rehearses the expansion of ruling class power into new spheres, by making a bid to manifest power directly in urban space.[lxi] The political landscape, and participation within it, is altogether conditioned by the bourgeois ruling class.

Schmitt states that Georg Hegel names the bourgeois "an individual who does not want to leave the apolitical riskless private sphere".[lxii] "[The bourgeois individual] rests in the possession of his private property", he continues, "and under the justification of his possessive individualism he acts as an individual against the totality".[lxiii] The bourgeois continuously seek "to tie the political to the ethical and to subjugate it to economics".[lxiv] The individual (which, of course, is a fictitious "everyman") in capitalist society only makes decisions to maximize their economic power and has ethical concerns and considerations which are not political. In bourgeois-capitalist ideology, politics is said to be a separate activity, not just apart from people but apart from society altogether. Marx writes:

> "The political revolution [the capitalist revolution which resulted in the destruction of feudal society] thereby abolished the political character of civil society. It broke up civil society into its simple component parts; on the one hand, the individuals; on the other hand, the material and spiritual elements constituting the content of the life and social position of these individuals. It set free the political spirit, which had been, as it were, split up, partitioned, and dispersed in the various blind alleys of feudal society. It gathered the dispersed parts of the political spirit, freed it from its intermixture with civil life, and established it as the sphere of the community, the general concern of the nation, ideally independent of those particular elements of civil life".[lxv]

This had the result of tearing a person into both the individual (commonly "man" in Enlightenment discussion), who is a member of civil society (or, to Kant, a participant in

a universal human community), and the citizen, who is a political abstraction.[lxvi] This abstraction, of course, selectively admits and bars entry into it: "[o]ne face of citizenship welcomes 'we the people' within the circle of membership; the other face refuses admission to those outside"—such as women, people of color, and queer people.[lxvii] More than this, citizenship is a concept which is built around the core of property ownership, and in doing so embeds property as political: "[t]he right of man to private property is…the right to enjoy one's property and to dispose of it at one's discretion (*à son gré*), without regard to other men, independently of society, the right of self-interest…It makes every man see in other men not the realization of his own freedom, but the barrier to it".[lxviii] Property must be defended and must be completely, entirely private; those who do not own property (or, those who are not already a bourgeoisie-capitalist) are concomitantly not citizens. At this stage of the bourgeois or Enlightenment experiment, the boundaries of citizenship have been vastly expanded from their original colonial, patriarchal focus. That said, power remains in the hand of the ruling class, though it is no longer followed to the letter as it appears in the constitutions of Euro-American "democratic" states. Property is now more of as a variable or exponent which expands and multiplies "inherent" racialized, gendered, and sexed "psychosexual" forms of power. When Carl Schmitt writes that "*propriété* turns into *pouvoir*", this still holds true, but the relationship is much more complex than a simple mechanistic transferrance.[lxix] Property, metabolized through social existence, becomes power. This *almost* appears to have democratic, levelling effects, as people from classes formerly excluded from citizenship can selectively slip into the halls of power through the backdoor of property. More often than not thought, Gush-up doesn't lift all boats but the usual ones: property flows along the old canals it always has, retrenching white supremacy and patriarchy. "When it reaches a certain quantity, economic property, for example, becomes obviously social (or more correctly, political) power, *propriété* turns into *pouvoir*".[lxx] The entirety of capitalist society, in a political sense, is based solely upon this principle; again, property is baked into the founding documents and constitutions of the Euro-American democratic project. Upstream from this, Soviet legal theorist Evgeny Pashukanis explains in his *The General Theory of Law*

and Marxism that legal theory itself follows a 'commodity-form' theory of law in capitalist states, in which "the legal subject of juridical theories is very closely related to the commodity owner".[lxxi] Essentially, Pashukanis argues that the logic of the commodity form (which, to put it simply, can be thought of as property) is the logic of the legal form.

What does it mean when data is a commodity?

Viewed through the property ⇒ power relation, Sidewalk's activities in Quayside become much more clear. Its taking of infrastructural and spatial ownership at the ground level should be seen not as the building of a city, but the construction of a factory. I mean this quite literally. Markets and Markets' *Smart Cities Market* report states that "[t]he project funding and Capital Expenditures (CAPEX) required for such large-scale deployment of technology are expected to hinder the growing smart cities market".[lxxii] The use of the phrase "Capital Expenditures" or CAPEX is illuminating: as an economic category, CAPEX refers to new investment in "fixed capital", also known as "property, plant, and equipment" assets. These appear on balance sheets as an investment instead of expenditure. Marx describes these as "constant capital" (as opposed to "variable capital", the both of which make up the "organic composition of capital" in that constant capital is dead labor (having happened in the past) and variable is living, waged labor)), which includes both fixed and unit prices, meaning both the machinery necessary for production and the materials which are used to create new commodities through the action of labor-power.[lxxiii] It is unusual that an entire neighborhood or urban area would be thought of as CAPEX; at best a building or business campus usually falls under the umbrella of capital expenditure. Sidewalk's statement that their capital approach in Quayside "has a different return profile and objectives than both traditional real estate and traditional venture investing" is quite revealing in this light; the project is not *just* real estate and not *just* venture investiture, but is the installation of fixed capital expenditure—the implication being that *the city is something which produces value*.[lxxiv]

This point is not entirely new; critiques of the smart city concept and Quayside have correctly pointed out that data is valuable. What is new is the conceptualization of the city wholesale not as urban space but as *as fixed capital oriented towards the creation of value in production*.

In the Marxist economic framework, machines cannot create value on their own. The only source of value is *human labor*. The reason for this is relatively simple: "[i]f machines are capable of adding value is a way analogous to human labor, then there is never, at any point, a difference between a proletarian, and, say, an auger".[lxxv] This is a fundamental rule of Marx's but one that is usually forgotten or completely ignored, especially as automated production becomes a more and more realizable possibility. The reasoning behind this is what Marx calls *the tendency of the rate of profit to fall*—a notoriously difficult concept which dominates *Capital* volume 3. This thesis does not need to fully explore the tendency, but a quick (and dramatically simplified) explanation goes something like this: the organic composition of capital, as I wrote above, consists of the relationship between constant capital (CAPEX, or dead labor) and variable capital (all workers within the system at any given time, or 'living', and thus waged labor). The amount of constant and variable capital in play varies according to the market. However, these fluctuations pose a problem: if surplus-value, or the amount of profit left to the capitalist (an index of the "intensity of exploitation of labor by capital"), is assumed to remain the same, then the increase of constant capital within the organic composition, or the introduction of greater machinery and automation within the production process, "must necessarily lead to a gradual fall of the general rate of profit".[lxxvi] The reason *why* this happens is exactly because greater technological development (aka the shortening of the length of labor-time to produce a commodity), manifested as the increasing amount of constant capital vs. variable capital, allows for commodities to become cheaper as less waged labor-power is embodied in each one. This is a general *tendency* (not a law!) which extends across the entirety of the capitalist system.

An understanding of the organic composition of capital is only one facet of a Marxist political economic framework which, in my view, it is absolutely tantamount to apply to the smart city. The number one reason for this is to figure out the messy problem of data, and particularly *data as a commodity*. This is not just a theoretical digression—even staunchly un-introspective places like *The Economist* (with barely contained glee) has remarked that the data oligarchs (Alphabet, Amazon, Apple, Facebook, and Microsoft) are analogous to the oil barons of the 20th century.[lxxvii] (They are, in fact, eclipsing oil, investing $77.6 billion to the top 4 oil companies' $71.5 billion.)[lxxviii] This view is pretty widespread: even a critical piece on the 'data is the new oil' trope upholds that data is "inherently valuable", it just "needs processing, just as oil needs refining before its true value can be unlocked".[lxxix] This little remark on data's "inherent value" is a clue: where does that value come from? On one hand, this is a clear reference to data's relatively new capacity to be sold and traded in an exchange market like anything else—data can now be "monetized" by its 'owners' and even sold on "data marketplaces" like Dawex.[lxxx] But this monetization does not occur out of thin air; nothing merely gets assigned a market price for no reason. This view of data as commodity really can't be accepted at just face value. But for starters: what is a commodity?

The word is used often even in standard (aka bourgeois or 'classical' economists, who Marx loathed so much), but not often very rigorously (something I myself can be very guilty of!). For example, CAPEX, though thought of as a specific economic category, are really just commodities—as are security cameras and other sensors, buildings, and essentially *anything* which can be bought and sold. If this sounds massive in scale, even universal, that's because it is! Sidewalk's Quayside, along with *everything else* produced within the capitalist mode of production, is a commodity. Marx makes this very clear: capitalist society "appears as a 'gigantic collection of commodities'" and "the singular commodity appears as the elementary form of wealth".[lxxxi] Lukács says more or less the same thing, finding within the commodity is "the central, structural problem of capitalist society in all its aspects".[lxxxii]

To put it as simply as possible, a commodity is an product of labor, or, quite literally "external object…which satisfies through its qualities human needs of one kind or another".[lxxxiii] This capacity to satisfy needs corresponds to a particular form of use, and as such lends an object an inherent (there's that word again!) use value. Use value is instilled via a discrete, specific process of production, called *concrete labor*. For example, if I were to make a bowl out of clay, it's use value is related to its being a bowl. I perform concrete labor with the intention of creating this bowl, and that's it—my goal isn't to merely design a bowl, or operate bowl-making machinery, or to market a bowl, just make it. That's it. Lukács, in the third volume of his *Social Ontology*, repeatedly refers to this labor process—the visualization of a goal and the manipulation of materials and tools to achieve it—as a "teleological positing" which, for him, contains a social dimension. Privileging concrete labor because of some arts & crafts romanticism is wrong, driven by nostalgia. It's not phenomenological directness which defines concrete labor, but when things are made *intentionally* in order to *directly fill a social need*.

The idea of use value may seem a bit obscurantist in the context of data. If data contains any value at all it has a use value; this use value is its specific relation to a certain recorded activity. Intentionality is embedded as I navigate urban space for a reason; I teleologically interact with the world (this is true if I stay inside my house, and that is recorded, or if I go to the store and that is recorded). If I am recorded crossing the street, that video or other sensor information corresponds directly to my activity. In a certain sense I am working upon the "machinery" (represented in CAPEX) to produce this specific use value within the recorded data. At this stage, it describes a single activity undertaken by a single person and thus exists uniquely against all other types of data. Even if I walk across the same street in the same way 5 minutes later, the data produced at this point will be totally different in content from the first, even though it may be same in form. Thus specific recorded actions create packets of data with specific use values. They are a direct result of a specific action—in exactly the same way the 'bowl' one produces is an immediate result of the actions required to make it. As Marx says,

"labor spent on the production of a useful article becomes expressed as one of the objective qualities of that article, i.e., as its value".[lxxxiv]

Though this conception may be a bit strange—that in producing data I am in fact *working upon the machinery which is the city*—it, in my opinion, cuts to a fundamental truth of data. Whether extracted through uninformed or informed persons, whether anonymized or not, as far as the data-as-commodity is concerned it doesn't matter all that much. This is not to say that the debates and activism around the method of data production aren't absolutely vital; in my opinion, however, they should not be treated as ends in themselves, but as critical stopgaps, such as the early 20th century's push for the 8 hour working day, for example. To reiterate: *at the level of the market, 'private' data can just as easily be monetized as 'public' (aka 'civic', aka 'urban') data can be*.

The use value of data is relatively simple to understand. If only the form of commodity stopped here! Over and above use value, there is also *exchange value* embodied in a commodity. Exchange value and its relationship to labor is quite a bit more complex than the relatively straightforward link between concrete labor and use value. First and foremost, exchange value is a specific historical difference, and only appears within capitalist markets. As is evident already, exchange value dominates use value within the capitalist market. Marx writes: "[i]t is no longer the worker who employs the means of production, but the means of production which employ the worker".[lxxxv] Though concrete labor definitely exists within capitalism, of course, it appears at the behest not of itself (for example, if you wake up tomorrow and wanted a different job for the day, too bad) but of *capital*. It is the laws and requirements of different capitals and bosses which "set[s] the agenda for production and '*employs*' in the most literal sense labor as its instrument".[lxxxvi] The reason *why* this happens I will discuss in a minute; for now it's only necessary to point out that labor in capitalism has a very clear material distinction from the social character of concrete labor's teleological positing. This is for several reasons: it is a "substantial social form" which "comes to subsume and dominate its dialectical opposite, concrete labor, as a subordinate moment of its own activity".[lxxxvii]

This requires a bit more discussion, but again, for the purposes of its particular application to data here, I will keep it as simplistic as possible.

Exchange value corresponds to a specific capitalist category which Marx calls *abstract labor*. Abstract labor is a relatively complex subject; making it even harder, there's plenty of novel interpretations that build upon or alter Marx's original remarks, mainly found in the first volume of *Capital*, the *Grundrisse*, and the *Contribution to the Critique of Political Economy*. In the interest of transparency, my remarks here on the concept of exchange value with respect to data read exchange value and abstract labor through Marx, of course, as well as I.I. Rubin's *Essays on Marx's Theory of Value*, and the so-called "New Dialectics" school of Marxism, especially Christopher J. Arthur's *The New Dialectic and Marx's Capital*.

To reiterate, as concrete labor corresponds to use value, abstract labor corresponds to exchange value. Concrete labor appears in data through the specific actions, such as crossing the street, entering a building, relaxing in a park, which are recorded in that data, whatever form it takes, and however private it may be. Exchange value is also added to data through labor. Remember, labor is the only source of value within the capitalist system of production and exchange; it cannot be dreamed up out of nothing. Exchange value must come from *something*. That "something" is *labor*, but it is *labor which has become abstract through its being subjected to the process of capitalist production*. The worker sells not their labor but themselves in their capacity to work; as Marx says, "the worker [them]self is absolutely indifferent to the specificity of [their] labor; it has no interest for [them] as such, but only in as much as it is in fact labor and, as such, a use value for capital".[lxxxviii] Put another way, "industrial capital treats all labors as identical because it has an equal interest in exploiting them regardless of their concrete specificity".[lxxxix] This is not to say that all labor is abstract in content; merely that the form in which a worker confronts capital with their labor—i.e. as a commodity to sell—nevertheless makes it abstract: "[s]eparated from the objective conditions of their

activity the workers' subjectivity is thrown back into itself…[t]heir use value for capital is simply the capacity for such 'work'".[xc] Capitalism *totalizes* all labor.

We can see this also in the sense of data being a commodity, or monetized data. Abstract labor appears wherein data is treated in aggregate—if Sidewalk only, for example, collected data in one sphere of activity, then sure, that data could be represented in use values. But instead, Quayside is a vast productive sensorium. The goal is that nearly every activity that takes place is turned into data, sucked into the Digital Layer. The sum total of this data, and the ability of its exchange to third parties and god-knows-who-else points to the presence of abstract labor embodied in the packets of data, no matter how small or how large. Each individual, as they work upon the machinery of the city, finds their specific concrete labor-activities subsumed into the overall presence of *total activity which is represented in urban data*.

Recall how I began this discussion: machines do not themselves produce value. Sidewalk, in its role as 'essential catalyst', is supplying CAPEX, or constant capital, and this is intended to create the techno-infrastructural armature which will make Sidewalk profitable. This is not true. The old adage that "if the platform is free, you're the product" is truer than we may have hoped in the smart city, and especially in Quayside. From walking, to shopping, to eating out, to meeting with friends, to sleeping—all these activities overlay the never ending production process that has replaced urban life. If your data is being recorded you are creating value, meaning you are at work. It doesn't matter if you are aware of this or not; if the data produced is de-identified or not; or really, what format or actionability implied the data contains. Signage and proclamations that the process corresponds with privacy law are irrelevant in the economic sphere. As long as that data can be sold, that is, as long as that data is a commodity, the citizen of the smart city is at work, reduced to a mere organ of the network.[xci] This discussion, however, is just a series of preliminary notes on the value-form as it appears in the monetization of data. It introduces a whole host of issues relating to surplus value and, concomitantly, the wage relation—basically, if you are

constantly working the city as productive machinery, is the data produced *all* surplus value (aka profit) for Sidewalk Labs? It sure seems as such. I will develop this line of thought further in later works.

A final note on labor

The above discussion reveals that no activity undertaken in Quayside is not, economically speaking, labor. But what of labor as we know it—of productive work and urban maintenance?

Sidewalk has adopted an implicit anti-labor program from the very beginning. Several of the core urban technologies that it proposes to build into Quayside are presented as developments to solve diverse urban problems when in fact they are predominantly solving *labor* as a 'problem'. What's more, these are not ancillary technologies but represent the constitutive core of Sidewalk's proposal, smuggling in the removal of labor down the highway of seamless convenience. This is utopia by a thousand cuts, stripping away or 'disappearing' the role of labor and maintenance in the city until nothing is left but the city as fluid automaton.

The first of these technologies is so innocuous so as to seem ridiculous: pavers. In 2018, Sidewalk Labs announced a design partnership with esteemed Italian architect Carlo Ratti to develop what the 'Dynamic Street' paving system to breathless acclaim from design and architecture publications.[xcii] These pavers are interlocking hexagons with connections for bollards, streetlights, and other public furniture and feature lights. Later, the pavers also gained heating coils and the ability to melt snow and ice.[xciii] "Imagine a city street", reads Carlo Ratti Associati's website, "…[d]uring the morning and evening hours, there might be a steady stream of commuters heading to work. In the middle of the day and the evening, families might use the street as a play space. And on the weekend, the street could be cleared for a block party or a basketball game".[xciv] Apparently to make this quotidian scene possible requires reconceptualizing

what a street is; coverage of the design focuses on how the pavers make the idea of an adaptive street possible and engender "urban transformation", though a hex-patterned paver seems like it would be just as receptive of a block party as any standard asphalt road would be. Sidewalk claims that lights in the pavers' center will change color to indicate usage, allowing sidewalks and curbs to be flattened into the same level as the roadbed and parking spaces to appear and disappear. This, supposedly, represents a novel reconsideration of urban public space. As we have seen previously with the Loft system, the pavers again prioritize a vague 'transformation' above anything else, even if its nonsensical. Nevermind! The shape-shifting "street of the future" is here.[xcv]

The pavers are designed with one more feature in mind, one which the architect mentions in passing: each paver "is designed to be easily picked up and moved around 'within hours or even minutes'".[xcvi] This sounds pretty good! No more potholes, no more melting asphalt, no more long and expensive road refinishing projects. The paver's easy replacement makes maintenance easy—but this is an expression of, yet again, an ideology of seamlessness. If broken pavers may be picked up and replaced within minutes, then the actual worker which is doing that labor nevertheless is forced to work not at a reasonable speed but at the *speed of the autonomous urban fluid*. Maintenance-work gets swallowed up into intensifying acceleration of the city which, as a seamless space for capital, pulses along with the market. Just as pavers are interchangeable, so is their maintenance, which is not employed as an impovement project but as simply an entity which is employed to appear as briefly as possible before again disappearing. Likewise, maintenance also is presented not as a social act but the automatic reproduction of a von Neumann machine.

The second major techno-infrastructural proposal is a vast productive catacomb underneath Quayside. John Lorinc describes the system "an extensive subterranean network of utility tunnels than not only serve as conduits for cables, pipes and pneumatic waste tubes, but doubles as an internal robot delivery system for cargo and all the quotidian stuff (groceries, the enormously heavy IKEA shelving unit) that's too

cumbersome for people to schlep from the car-share drop-off to their front door".[xcvii] It's hard to get more literal here: freight, waste, and delivery labor is deemed unsightly, buried underground in a "pilot" for "an internal robot delivery system via its utility channels".[xcviii] Of course, this has a precedent in common sewage and water delivery systems, and on the face of it is not too earth-shaking of a proposal. However, the apparent reliance on autonomous systems—in a rapturous article, Fast Company gushes "[i]ts subterranean level is run by robots!".[xcix] The extrinsic idea is to create a "people-first public realm" by removing urban logistics from the public eye.[c] This, of course, sounds pretty good: it meshes well with increasingly louder (and necessary) calls to remove cars from cities and to reignite public transit, among other things. But Sidewalk has no short-term plan to remove private cars in Quayside, instead kicking the can down the road with an abstract goal of pivoting toward public transit.[ci]

The rhetorical centering of "people" within the neighborhood performs a multifaceted operation: first, it implicitly establishes the logic of a community on the basis of public participation; secondly, it defines participation as "non-productive" leisure activity undertaken within the urban realm. Labor is first dehumanized in discussion as a prelude to its dehumanization in practice. Maintenance is non-existent in Sidewalk's plans, positing a post-maintenance future beyond the "need to study is how the world gets put back together".[cii] Nevermind that the capacities of the automatic infrastructure Sidewalk wants remains relatively undefined. At the scale proposed, Quayside would likely require more than just a subterranean network but a complete infrastructure buildout ('ugly' as that may be).

A quick look at Canadian waste disposal statistics spells problems for Sidewalk's all-in-one solution: Ontario residents per capita generate an average of about 700 kilograms of waste a year in 2010.[ciii] This number has only increased, jumping 4% between 2014 and 2016.[civ] At full buildout and residency for Quayside (5,000 residents), this works out to an average of about 3.5 million kg of individual waste a year, (disregarding waste generated by businesses or other sources). Packages and mail represent another

headache (one wonders if traditional mail service would even be allowed to enter Quayside), though Canada Post delivered 8.4 billion pieces of mail in 2018, to say nothing of corporate delivery services, deliveries from Amazon packages, or courier services (all of which will purportedly be handled through 'last-mile' subterranean delivery robots).[cv] Those subterranean utility channels are likely to get crowded.

It remains to be seen what the final form basic infrastructures like this takes in Quayside will be, but the intention is clear even in this early stage: Sidewalk's city is for people—but only a particular type: the service worker in leisurely repose, or shopping, or walking home from work.

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The smart city and history

Sidewalk likes to talk about Quayside in world-historical terms. They frequently makes statements that their smart city project represents something novel, appearing as an alpha test for a new form of living: "[o]ver the past 200 years", goes the RFP, "the greatest leaps forward in urban life have occurred at the intersection of new technology and the physical environment. The steam engine, electricity, and the automobile all transformed how people live in cities today. These advances were not without their drawbacks, of course, but they fundamentally changed the capabilities of cities".[i] And of course, Sidewalk is right there at the forefront, leading the charge: "[t]he world is on the cusp of a fourth revolution in urban technology every bit as powerful as the previous ones, driven by ubiquitous connectivity, machine learning, and new advances in design and digital fabrication".[ii] How fortuitous for them!

The smart city is the heir apparent of the post-industrial milieu, appearing to sociology as something of a troublesome figure, representing the long-nascent synthesis of both its pro- (Marx and Durkheim) and anti- (Tönnies, Simmel, Wirth) dimensions. Prior to the advent of an urbanized Britain (happening at the same time capitalism came to assume its industrial character), the city had been, for the most part, presented as the best efforts of civilization in general: the home of culture, of "the seat of *par excellence* of civilization, the repository of the civilized graces and all the progressive elements of social life".[iii] "The revulsion against industrial urbanism," sociologist Krishan Kumar notes, "so clear in so much nineteenth-century art and literature, reached a pitch that, far from abating, seems only to have increased with the growth of the twentieth-century 'megalopolis'".[iv] Kumar, writing in 1978, missed out on today's urban revival, in which Richard Florida's infamous 'creative city' has risen to function as a contemporary analogue of the ancient city and its civilizational progress. The smart city develops the abject city of industrialization against the city beautiful of creative production: industry can remain, and perhaps even be welcomed back, on a small, artisanal scale (or else it is

removed from the smart territory) and subjected specifically to the overriding requirement of the modern, so-called post-industrial megalopolis. Emile Durkheim's paean to the cities in *The Division of Labor in Society*, proclaiming that "great cities are the uncontested homes of progress" would not be out of place in a mayoral speech today—or in Sidewalk Labs' ad copy.[v]

Against this claim—that a new urban age is upon us—I would like to erode Sidewalk's technochauvinistic claims to novelty. I would also go one step further: the idea of the "new epoch" which informs Sidewalk's proclamation itself needs to be critiqued.

This may seem a bit absurd at first blush; of course history is a process of change, of evolution. Dan Doctoroff loves trotting out this line of argument, positioning Sidewalk as inevitable and change as something as inexorable as a speeding car. The province of Sidewalk is merely to overwhelm "the natural resistance that comes with any changes".[vi] Doctoroff clearly sees himself, on some level, as an agent of history.

Though comments like Doctoroff's seem silly (and they are), they nevertheless point beyond his own egomania, or the organization he represents, to a deeper ideological current within capitalism itself. This is the idea that the smart city represents a novel idea in history—a viewpoint which appears lucidly throughout Sidewalk's own materials on Quayside. In order to lay the groundwork for this critique, there are two contradictory myths that must be dissected: the first, that *the bourgeois-capitalist class are urban and revolutionary*, and the second that *the smart city is a revolutionary idea*. Both of these relate immediately to the preceding discussion of the commodity which closed out chapter two—though it specifically focused on commodity production within the smart city, it is an essential plank of the argument which will close out this thesis: that Sidewalk, as well as the entirety of the contemporary technochauvinistic *coterie*, depend on an ideological argument to secure their power. This argument likewise depends on the eradication of *labor* from history.

Capitalist society is urban society

"The association of capitalism with cities is one of the most well-established conventions of Western culture," Ellen Meiksins Wood writes in *The Origin of Capitalism*.[vii] The city is identified with capitalism, and vice versa; my own education at Parsons has accepted this as matter-of-fact (not to single anyone out specifically—as I explain later, this seems to be a foundational stance taken by urban sociologVenice, the freeports, the Hanseatic League—all these are supposedly responsible, in their development of mercantilist trade, the eventual emergent logic which today we call *capitalism*. "[T]he implication is that *any* city, with its characteristic practices of trade and commerce, is by its very nature potentially capitalist from the start, and only extraneous obstacles has stood in the way of *any* urban civilization giving rise to capitalism".[viii] Get the picture? This same type of historical inevitability is exactly what Doctoroff is hearkening to. Once again, Sidewalk places itself on a world-historical cusp, just like the trading cities that supposedly birthed capitalism. Sidewalk follows this ideological concept of city-as-generator along. If only cities, properly freed of constraints (such as repressive governments) could be allowed to fully flex their natural entrepreneurial powers and naturally ignite change! If only the absurd Luddites and stodgy old governments could step aside and allow progress to occur!

This argument has long been an object of intense discussion in Marxist circles, as part of a general series of critiques which sit under the umbrella of the "transformation problem"—the transformation being a question of the exact way that feudalism exploded and society was reconstructed, bit by bit along capitalist lines. The prevailing bourgeois view names cities as ground zero for capitalism is called the *commercialization model*. Wood summarizes: "the commercialization model…assumes that trade and markets are by nature tendentially capitalist, requiring only expansion and not qualitative transformation".[ix] This is a neat little trick, as Wood notes, burying the true rise of capital in a circular argument—the pre-existence of capitalism is conjured up to explain its appearance. By this logic, capitalism was already here before it arrived. Gilles Deleuze and Felix Guattari make this same argument, as noted by Mark Fisher in *Capitalist Realism*: the two "describe

capitalism as a kind of dark potentiality which haunted all previous social systems. Capital, they argue, is the 'unnamable Thing', the abomination, which primitive and feudal societies 'warded off in advance'".[x] This is a particularly absurd, and moreover, totally ahistorical view of capital, which Wood rightly excoriates, part of an overall trend to cast capitalism back in history to the point of rendering it a natural occurrence of inevitable proportions. It ignores "the specificity of its distinctive competitive pressures, its systemic imperatives of profit-maximization, accumulation and improving labor-productivity".[xi] Neil Brenner is perfectly clear: it was not in the extensive intensification of urban commerce that capitalism was born, but the English countryside, as the old feudal system slowly but surely gave itself over to the rehearsal of labor as a commodity, and as Wood notes, the conversion of the invitation to participate in the burgeoning market society into an *imperative* to do so.

A full explication of this idea as well as an extended takedown of it is available in Ellen Meiksins Wood's *The Origin of Capitalism* and likewise formed the core of what has been termed the "Brenner debate" that raged throughout Marxism and the Euro-American radical left throughout the 1970s. The ideas critiqued are those which constitute the very core of bourgeois-capitalist class identity and self-actualization. Of course, the commercialization *myth* depends on the presence within the cities of the *burghers*. Marx mentions the *burghers* in *The German Ideology* as the forerunners of the modern bourgeois class, petty entrepreneurialists and merchants who were born out of cities in free association.[xii] Thus the bourgeois class styles itself as urban, and also *revolutionary* (Liberté, égalité, fraternité and all that). Wood's breakdown of the Brenner debates reveal Marx's account of the rise of the *burghers* as simplistic, and further circular: if the *burghers* were already coming into their own as a class, why were the bourgeois revolutions of France and which birthed the United States necessary to constitute them as a class? This is not to claim any specific bourgeois tendencies on the part of Marx or later Marxists, who were reasonably focused less on capitalism's historical emergence and more on *what* specifically made capitalism different from all previous societies (what Marx terms the *differentia specifica* of capitalism).

For the purpose of this paper and the sake of my argument it is critical to make the point clear that the bourgeois, contrary to their own self-conception, is not an urban

class nor a progressive, revolutionary class. Georg Lukács reports that the bourgeoisie have a class consciousness, which is to say not that they act as one but all generally support that which secures their position at the top of an oppressive class structure, from which vantage they can exploit, terrify, and violate everyone beneath them in any way they see fit. Their own ideology, while seductive due to the fact that it rots inside every pore of contemporary society, is an elaborate fiction. In bourgeois thought, "we find the utter sterility of an ideology divorced from life, of a more or less conscious attempt at forgery".[xiii]

Daniel Doctoroff, as an individual member of the bourgeois-capitalists, reproduces his own class consciousness, and so of course sees himself as an revolutionary—one who has made the city his medium. Sidewalk, as a similarly bourgeois organization, reproduces the same project. Against this, it is important to realize that Quayside appears not fully formed on the world stage but as a project and product of the bourgeois class' own tortured self-actualization. Thus it is carefully presented as progressive, of the future. Underneath the class rhetoric, it is a wholly bourgeois artifact which truly marries the urban and the revolutionary elements of bourgeois consciousness into one perfectly polished, irresistable package. The smart city is a victory tour for the bourgeoisie. It is a "real abstraction", which makes manifest their own deepest held ideas about themselves, and in so functions as a proof positive of the ineffability of their worldview. When paired with the political-economic nature of the smart city discussed last chapter—as a vast machine which is worked upon to produce the value of commodity data—it becomes very clear what smart cities, of which Sidewalk is possibly the best case, do for power: they are designed to produce and continuously reproduce bourgeois domination.

From industrial to post-industrial

This section is necessarily longer, as its scope is wider. Its intention is similar to that above: to rip bourgeois self-image off its rarified pedestal and place it within the

historical totality; to force it to confront history in all its messy reality, not as a simplistic procedure. Think about it: history is often viewed, taught, thought of, and talked about as large, distinct periods. These periods seemingly aim to make them legible by defining them against others, and as such constitute, in an abstract way, material changes on the ground. No one would argue really that *something* happened several centuries ago in which the world changed from one dictated by feudal political economy to the capitalist system, though there is disagreement as to the specificity and nature of the causes of that transition. Thus, periodization can be useful.

However, in capitalism, history takes on a much different meaning. As feminist and subaltern scholars such as Gayatri Spivak have long discussed and made clear, historical understanding in Euro-American capitalism functions as an essential tool in the arsenal of power, carving out an ideological framework which eliminates intersectional people and populations in favor of a colonial history of Euro-American inevitablility and infinite expansion of the market. As Jennifer Bloomer notes, "even work by and about women has been reduced and distorted through through phallocentric codes of analysis and production such as rationality, objectivity, hierarchy, dualisms, and conclusions".[xiv] Many people throughout history have died two deaths: once physically, the second of neglect, as their names and voices are excluded from the historical record in favor of a white male capitalist view of the story. Overarching dominance of material power and historical mastery essentially gives the bourgeois and capitalist control of not just the present, but the past, and in so doing establishes itself not at just the center of the universe, but incontrovertibly so; the abstract category of *science* or an impartial objectivity is trotted out as justification. The historical, lament the oppressors, is an empirical process in which facts are recorded. This is immediately suspect: "there is something highly problematic in the fact that capitalist society is predisposed to harmonise with scientific method, to constitute indeed the social premises of its exactness".[xv] Counter-historical narratives revive an excluded history against scientific hegemony.

Yet, as the previous section made clear, there are some historical fictions the bourgeoisie have put in place that are too deeply engrained and thus find themselves relatively uncontested. A general hagiography of capitalism itself is one of these concepts; existing at a level of relative abstraction, it is generally accepted. What I am talking about here is a twofold historical compartmentalization of capitalism, which usually breaks down into an 'industrial' phase and our current 'post-industrial' milieu, beginning usually sometime in the 1970s. The figure of the age, or so it is told, is information. Concomitant is a continued insistence upon *communication* or *information* as a supposed aporia for Marxism, as stated originally by Dallas Smythe in his 1977 article *Communications: Blindspot of Western Marxism*, has produced a contemporary theoretical landscape in which Marxism is presented as an outmoded dinosaur which speaks to the old world of the industrial proletariat. Smythe removes labor from the contemporary world (performing the fundamental error of reification—of making an object of ephemeral *relations*, a concept long discussed by Marxists); his assertion has taken on a life of its own, allowing sociologists, urbanists, and the like to state confidently that Marxism was buried with the industrial past. As Terry Nichols Clark notes, nearly in passing, the contemporary age is not just post-industrial but post-*ideological*, echoing Francis Fukuyama's famous declaration that history has ended and non-ideological capitalism now reigns supreme. "Marxism is withering," Clark states matter-of-factly.[xvi] Post-industrialism neatly declares a new world and then constructs its facts, logic, and worldview, and then by way of a finisher declares ideologies dead and Marxism irrelevant. This thesis intends to counter exactly this argument. When Marx does appear, in my experience, he is placed in a pantheon, just one of a series of 'fathers' of sociology along with Comte, Turgot, et al. This completely misreads the value of Marx and Marxism: the point is to not celebrate the oeuvre of his or any other single thinker, and it "does not imply the uncritical acceptance of the results of Marx's investigations. It is not the 'belief' in this or that thesis, nor the exegesis of a 'sacred' book…orthodoxy refers exclusively to method…It is the conviction, moreover, that all attempts to surpass or 'improve' it have led and must lead to over-simplification, triviality, and eclecticism".[xvii]

An enormous amount of writing has been poured into describing the post-industrial transition, sometimes characterized as the shift between liberalism and neo-liberalism, from the 'mass worker' to the 'social worker', blue collar to white collar, suburbanization, financialization…the list is endless. The general takeaway, however, can be reduced to this: value now came from services as opposed to an urban proletariat working in factories. I argue this is more of an aestheto-philosophical, not sociological, distinction, with monstrously exploitative undertones. It depends on an idea developed by Alain Lipietz called "peripheral Fordism", in which the industrial workers of the Euro-American imperial-industrial core are exported out of sight and out of mind to the Global South.[xviii] For the purposes of this paper, the idea of neoliberalism can be thought of as the political arm of the economic regime of the post-industrial, following Erica R. Edwards' explanation of Cedric J. Robinson's thought in her preface to the new edition of *The Terms of Order*: "the market society motors political authority in Western society, and political authority, in turn, rationalizes an economic order that is, too, presumed to function according to natural laws governing order and social cohesion".[xix]

To return to the concept of the smart city, lets look at the way first a 'post-industrial city' came into being in the literature. In 2010, Jean Baudrillard, in conversation with Sylverè Lotringer, commented in *The Agony of Power* on the destruction of the Twin Towers as a similar moment of topographic shift: "In the collapse of the two towers, as opposed to the ordinary destruction of bombardment, where horizontal territory is struck from a vertical position, here the vertical dimension was struck head-on by the horizontal. *A subversion of the usual orthogonal space*—it is another topology—prefigured by the verticality of the towers, which was very different than the Empire State Building, for example. The Empire State Building still represented the *Promethean verticality* of capital and wealth, of rivalry and domination".[xx] That "Promethean verticality", it came to be understood, now appeared to be strange and unwanted. Sidewalk follows this same line of argumentation, positioning itself against a strictly

defined idea of "authority" (as discussed in a previous chapter) in order to kick its own megalomaniacal intentions under the rug. It isn't so much that authority has died, but that the old modes of showing it off have. (There will never be another Manhattan. Not that that is particularly a bad thing.)

Likewise, around the turn of the millennium, Edward Soja proclaimed the birth of a "New Regionalism" which announced the newfound importance of the urban *region* over the city, espousing a "regional political economy".[xxi] Both statements are obsessed with the vagaries of a new push—away from the priapetic capitals of industrial capitalism (conceived of, in Baudrillard's case, the removal of Promethean verticality by the horizontal swarm and in Soja's case the slumping of that same verticality into a horizontal field.[xxii] Both Baudrillard and Soja are getting at the same phenomenon: wealth and power no longer stretch to the clouds, bellowing their dominance, but rather disseminate and twist insidiously into the cracks of the planetary surface, into the recesses of everyday life and reproduction. Quayside, as discussed previously, occupies this role well—it offers a pastoral lifestyle with peri-urban density (roughly 415 people/acre) and takes pains to seem allergic to top-down planning.[xxiii] The operative idea here is that "[t]he Overclass does not want to be 'at the top' of the social scale—that would be to resuscitate social pyramids as old-fashioned as those of penguins and gorillas—but to be rampant everywhere and nowhere, always more furtive, always more ephemeral and, of course, beyond the reach of States".[xxiv] The smart city comes on the heels of the long application of this furtiveness to space, reflecting it perfectly.

Against Baudrillard, Soja, and Sidewalk's claims that there is revolutionary, historical activity, I want to contest the implicit mythologicization that *capitalism drives history*. This 1970s shift is almost always tracking a plethora of market shifts which occurred due to a collapse in the capitalist status quo, or in other words a *crisis*. This crisis was itself long and extremely damaging. The disintegration of the post-World War II Bretton Woods agreement, in which the US dollar, pinned to gold, governed world markets introduced enormous instability; the 1973 oil embargo further undermined Euro-

American economies; the sudden implosion of the London Gold Pool put the world economy on further shaky ground. Robert Brenner (no relation to Neil Brenner of the Brenner debate, I don't think) identifies 1973 as kicking off a 'Long Downturn' which continues to this day.[xxv] I argue that, though of course this crisis occurred (and many crises have and will continue to happen as long as capitalism remains), the resultant declaration of a 'new age' which proceeds from the ashes of the old ways is an insidious naturalization of capitalism *tout court*. There is an undergirding argument here, in allowing capitalism to declare its own modifications of history, that capitalism itself is eternal—a '*condition humaine*'—it may change, of course, and some thinkers (such as Manuel Castells, discussed later in this chapter) may even declare capitalism itself to be dead or superseded in favor of some new form. Against this, and against the smart city, I want to make clear: capitalism is not revolutionary or a radical force. It has mastered change while remaining reactionary and retaining its fundamental core of domination and exploitation. It cannot be said to have disappeared from history, or even to have fundamentally been altered, if the original laws which govern it—the wage relation, the existence of the commodity form, its bizarre formulations of value for exchange—remain in effect. When a capitalist declares a new "urban revolution" or a new dawn of post-industrialism, it depends first and foremost on this fundamental logic which the end result of is to allow capitalism to further insinuate itself not just in its own history but in the history of humanity. As such, it must be critiqued!

This is not a simple statement to make, and goes wildly beyond the purview of a master's thesis. The following chapter basically consists of some notes towards what may be a future critique of *capitalist history*. My current thought is that every crisis of sufficient magnitude is matched by the resultant declaration of a new and corresponding *epoch* by the enemy. This turn will require much much more research.

However, what can and must be critiqued here is the existence of post-industrial society; in reading the originary texts, I try to prove that it, essentially, does not exist. Rather, capitalism continues apace, much as it always has. The preceding bulk of this

thesis has already worked to establish that a smart city is anything but; it is a venal undertaking by the bourgeoisie-capitalists to consolidate power and capital undertaken in the way it usually tries to consolidate power and capital. From here on out, I will try to do the same, showing that however alluring fictions of post-industrial existence may be, underneath it all is the same hideous, brutalizing machine which colonized the world and punishes the oppressed, and any pretense to otherwise only allows it to continue unabated.

We have never been post-industrial

The post-industrial age pivots around, first and foremost, the literal disappearance of the industrial in favor of what is variably called the "knowledge economy", the "information society", the "Indigo Era", "cognitive capitalism", "semiocapitalism", "vectoralism", "surveillance capitalism", "the Age of Artificial Intelligence", "the Digital (or Third) Industrial Revolution", to name just a few.[xxvi] The uptake is that the economy has moved from industrial conditions of scarcity to ones of abundance (abundance for whom? one might ask) and the old industrial economics has been replaced with a cognitive, ephemeral, and immaterial economy of communication. The actual names don't matter—they are basically equivalent to some bizarre form of self-therapy on the part of the ruling class. Gilles Châtelet sums all these up as the "Cybermercantile Order".[xxvii] Ostensibly 'Marxist' (or 'neo-Marxist') critics such as Christian Fuchs, who has staked his academic claim on updating Marxism for the age of information, offers a pseudo-dialectical "axiomatic" model of capitalism today which he situates in a veritable bestiary of capitalisms: "information capitalism or finance capitalism (or other capitalisms, such as hyper-industrial capitalism, mobile capitalism, etc.)".[xxviii] In his telling, the task of Marxist theory reduced to a game in which the analyst sits and attempts to see "see capitalism's manifold dimensions that mutually encroach each other".[xxix] The impulse to supply capitalism with prefixes, periodizations, epochal shifts, and so on is in fact a further tool of capitalist reproduction, that stratospherically multiplies meaningless complexity in order to allow capitalism itself to

withdraw from view, and the laws of motion which govern it to remain hidden. To put it in simpler terms: what is the use of appending various alternate naming schemes if these have only minimal material basis? How does "information" or "finance" capitalism function differently, *at its core*, than capitalism *tout court*? Increased computerization or the arrival of finance markets does not alter the fundamental engine of capitalism in any way—no matter how much its proponents would like it to. Is accumulation not still an iron law? Does the commodity still not rule each and every aspect of human activity? Until these first questions can be answered differently, capitalism remains. The masks it wears, however enticing to speak of, are abstractions. They remain utterly divorced from the material force of capitalist existence.

The numbers are complex: the United States, the United Kingdom, and Japan still dominate worldwide manufacturing output, despite announcements to the contrary.[xxx] Curiously, a recent *Washington Post* article states that manufacturing jobs in the US have "plummeted" from 18 million in 1990 to 12 million in 2014; it is only in a parenthetical edit that the author makes mention of a crucial detail: "the decline in manufacturing jobs is actually more closely tied to automation rather than offshoring. The U.S. is manufacturing more now than it ever has, but much of that work can be done by machines — which don't require salaries or health care coverage".[xxxi] Marx wrote about the relationship of machines to labor extensively. In a passage from the *Grundrisse*, he is explicit: machines increase the capacity of labor, but does not replace it: "[a]s long as the means of labor remains a means of labor in the proper sense of the term, such as it is directly, historically, adopted by capital and included in its realization process, it *undergoes a merely formal modification*…"[xxxii] Marx elaborates further: "the machine [is enabled] to perform the same labor as that previously performed by the worker. However, the development of machinery along this path occurs only when large industry has already reached a higher stage, and all the sciences have been pressed into the service of capital".[xxxiii]

Automation is something Sidewalk intends to employs at multiple scales in Quayside, from a fleet of self-driving vehicles which are intended to handle nearly all transportation in the neighborhood, to 'last mile' delivery robots. Automation constantly looms, especially in the news, as a inevitability to the extent it is almost a trope at this point (see the MIT Technology Review's bleakly comic aggregation of all "automation job loss" studies they could find).[xxxiv] But is this what is really going on? As Meredith Broussard makes clear, technochauvinism has from the beginning depended on its ability to "obscure the role of human beings in creating technological systems".[xxxv] Despite long-running claims automation will take hold in 5 years, this always seems like a moving target. However, there is a substantive, and more importantly, *non-technological* explanation for the post-industrial shift: Robert Brenner remarks that "[b]etween 1973 and the present, economic performance in the US, western Europe, and Japan has, by every standard macroeconomic indicator, deteriorated, business cycle by business cycle, decade by decade (with the exception of the second half of the 1990s)".[xxxvi] Beyond the dystopian claims that jobs are disappearing is the reason, perhaps, not technological and progressive, but rather economic, in the sense of a long, slow recession?

Technochauvinism

It is here, at the scale of planetary history, that technochauvinism appears in full force. Many of the arguments for society having entered a post-industrial phase refer to surface phenomena, such as the aesthetic or the technological. In order to make these arguments work, post-industrial theorists have to center technology by claiming that it acts on its own and drives history and social life. We can think of this as technochauvinism blown up to the proportions of historical sophistry. The basic argument of technochauvinistic approaches—that technology is a prescription—also relies on a view of history in which humans are guided by a 'spirit' of technological progress which exists *outside* that history. This appears in Sidewalk's self-conception as "catalyst" (just provide the money and technology will do the rest), but moreso, the in

statements like "[h]uman tastes change, and they often change in response to what technology makes available".[xxxvii] This phrase—"what technology makes available"—depends an idea of technology which acts almost like Providence. This is hard to support because there is no actual subject of technology: there are individual moments, or "quiddities" of technological advancement, which appear as artifacts, and which necessarily are more advanced than previous artifacts.[xxxviii] But to assume that this implies a general upward trend in which technology constantly subjects human society to more advanced technological expertise is ridiculous. *Technology is nothing but the organization and capacities of labor*. As I discussed in the last chapter, ours is a world of commodities, riven at every facet by the commodity form. Technology appears to us as objects and paradigm shifts, and thus as commodities. Commodities *do not exist* without labor; it is only a product of massively organized labor, which is to say production. Technology is the name the bourgeoisie-capitalists give to the output of production so as to obscure production itself. Lukács: "if technique is not conceived as a moment of the existing system of production, if its development is not explained by he development of the social forces of production…it is just as much a transcendent principle, set over against man, as 'nature', climate, environment, raw materials, etc.".[xxxix] This is crucial to keep in mind: technology is simply the resultant of production under capitalism. Higher stages of technology are often a result of technoscientific organization or machinery applied to the process of production, often accompanied by an uptick in labor exploitation. To place faith in it is to follow an absurd technochauvinism that prescribes technology not just as the answer, but the cause of social conditions in the first instance.

This "historical technochauvinism" forms the root of the following accounts of post-industrial society. Technology is the ideology of the ruling class. This is their fundamental mistake, which they attempt to rectify by remaking the world in their image.

"The Coming of Post-Industrial Society"

Even in the triumphalist, reactionary circles which spawned post-industrialism as process/product, there is significant disagreement with the specifics of the post-industrial age: when it began, what it entails, and so on. That said, Daniel Bell's 1974 *The Coming of Post-Industrial Society* is largely taken to be the touchstone of this new designation, and Bell as its prophet, having popularized Alain Touraine's phrase from a few years prior (other post-industrial theorists, particularly Manuel Castells, Jean Baudrillard, and Krishan Kumar, will be discussed later in this chapter). Bell's sketch of post-industrialism's anticipated social form has some generic features, including the change "from a goods-producing economy to a service economy, the centrality of theoretical knowledge for innovation, the change in the character of work, from a game against nature and a game against fabricated nature to a game between persons".[xl] Further, Bell holds that post-industrial society can be further defined by the resurgence of "vertical orders", comparable to the "ecclesiastical, military, legal, economic, and political orders" and affiliations which defined feudal society, though with a particular twist: Bell speculates workers will become even more nomadic, affiliated with not each other (how convenient, to proclaim the death of the proletariat!) but to themselves only, differentiated by technical ability (or applied knowledge) and thus birthing a technical class.[xli] We can see shades of this today in the (fictitious!) differentiation between skilled and unskilled labor. This constitutes for Bell the effective *end of capitalism*, which Bell asserts has "dug its own grave by the furious promotion of a hedonistic society, which undercut all of its original legitimations".[xlii] (I have to note here that Bell does not explain what those legitimations are.)

Christopher Lesch's withering critique of Bell in his review of *Post-Industrial Society* for *The New York Review of Books*, and the subsequent heated exchange of responses thereafter, points towards several key preliminary points of critique. The first is that Bell's declaration of the dawn of the post-industrial age is mysteriously ageless, predicated on not just various other thinkers but also Bell's own essays predating his book by 15 years (remember Ellen Meiksins Wood's description of the bourgeoisie's

circular logic?). Of course, the novelty of Bell's work is not at stake. The second is that despite claims that we now live in a service economy economy, a world of technological innovation, or a time of rapid development of the very character of labor, all of post-industrial reality is simply a certain modulus of social-economic relationships of power.

Bell could not help himself but to rebel (if you could call it that) against what he perceived as the monomyths of both a vulgarized Marxist "econocentricism" and a functionalist-positivist moral standard. "Marxists," Bell wrote, "believe that the society is unified through the mode of production; functionalists believe that society is integrated through a common value system. Neither view, I believe, is adequate to explain certain contradictions in contemporary society".[xliii] Bell positions his own account of the disunity of society specifically against Lukács' totality, as an alternative view, thus begging the question where did the perceived atomization come from? and then seeking to plot out the ramifications of a social metaphysic of his own construction.

Bell placing his own account of the post-industrial in relation to the totality opens up a particularly withering line of critique by Lukács from *History and Class Consciousness*, bound up in his own definition of what the totality *is*—a heuristic by which to observe and comprehend the fitful interaction and laws of motion of capitalist society *in toto*. To begin, Lukács draws out Marx's statement: "The relations of production of every society form a whole" (this is roughly the same idea as the "organic composition of capital" discussed last chapter).[xliv] This is also where Bell begins, but he turns it aside in favor of a fitful plurality defined by *contradiction* (it is to Bell's paltry credit that he can detect these). Returning to Lukács, he concedes that "[t]his dialectical conception of totality seems to have put a great distance between itself and reality, it appears to construct reality very 'unscientifically'".[xlv] However, the unscientific appearance of the totality is only when juxtaposed against bourgeois "royal science": "The rightness of this view [of the totality] only emerges with complete clarity when we direct our attention to the real, material substratum of our method, viz. capitalist society with its *internal antagonism between the forces and the relations of production* [emphasis mine]."[xlvi]

So—Lukács' totality is not a monomyth at all, but rather a method by which to collapse the above and the below, the macro and the micro, into a subject of analysis which *nevertheless does not eliminate contradiction so as to construct a closed, teleological system*. Bell's own claim that *Post-Industrial Society* is an attempt to reckon with "changes in the *social structure*" falls flat, as by his own admission that, yes, his analysis comes with gaping holes and contradictions of its own.[xlvii] Only a view of the totality—a system which admits and allows contradiction just fine—can survive as where rigid schematics like Bell's fall flat. As a result, Bell's system cannot really accept the form of the state, even and especially when it also centers, as his post-industrial world does, on intelligence. For example, when asked about the role of the CIA in post-industrial society, he can only say that "there are many devils in a devilish world, but those kitchen sinks belong in another room, and please keep them there".[xlviii] We can read this as a direct failure of Bell's project by his own terms: though his project directly involves the genesis of a new politics it cannot contend with existing political institutions. As Susan Strange remarks in *States and Markets*, the simple assertion that "we are in the midst of a 'revolution' [does] not explain in what ways this revolution is going to change the context of human relations, how it is going to shift power or redirect the efforts of human societies to new goals".[xlix]

Further, Bell's new class structuration nevertheless fails at being a structure which adequately explains power. Susan Strange again: "[in] a knowledge structure…power and authority are conferred on those occupying key decision-making positions in the knowledge structure".[l] This simple statement—that knowledge necessarily engenders a heirarchy, is an aporia to Bell, who imagines instead that the rise of a new economic class of managers will somehow upend the knowledge structure already in place. In a perfect world, in which society behaved in an orderly and rational positivist way, Bell's statements may be correct. We do not live in this world, and our reality is riven with deep contradictions which disturb and topple his carefully ordered procession of reality from one stage to the next. He assumes the development of a contradiction (the rise of

his post-industrial conditions of the new labor) to mean capitalism has died, because the bourgeois view of capitalism he espouses cannot tolerate contradiction within its knowledge system.

Lukács calls the dialectic "no more than the conceptual expression of the fact that the development of society is in reality contradictory, and that these contradictions…are the basis and the kernal of all events".[li] In a dialectical view of capitalism, the aporia presented by contradictions such as the increasing libidinality of the market juxtaposed with the obdurance of state-power institutions is shown to be the site of productive social change. However, this change is still dominated by the machinery of capital and its repressive powers to sustain itself.

Bell's ideological argument that not only seeks to provide a gloss for capitalism's inherently contradictory structure, but further performs a crude sleight of hand by admitting that capitalism's relations are *conditional* (a vulgar theodicy: industrialism is dead, long live capitalism!) while at the same time promising that capitalism in itself is "predestined to eternal survival by the eternal laws of nature and reason".[lii] Post-industrialism, in Bell's view, *happened to capitalism*. It (in Bell's terms) forces a complete reconsideration of the surface conditions of capitalism, *but not its depth*—and Bell presents himself as humbly taking its pulse while he is in actuality bending over backwards to explain away its excesses and its crises, taking "an ever-changing product of the historical process as a fixed theoretical starting point".[liii] Thus, the problem of accumulation and the annihilation of urban fixed capital in the 1960s and 70s becomes snatched from the jaws of crisis and propped up, as a promising pivot towards a world in which crisis disappears. It's all going according to plan! The bludgeon and the scalpel which make Bell's argument possible, which portends that the new tomorrow is on the threshold, is purely technological: that progress, loosed by capitalism, has developed the technical forces of production to such a degree that the social relations of production have been modified. Thus, he makes a critical error. Bell aims to sacrifice what he calls "capitalism" (which in his reality, is an idealized caricature of industrialism) and makes

a claim that the future is an advanced form of the old dream of total technocratic administration. This isn't a new call. It goes all the way back to the birth of industrial capitalism, in which sociological positivists like Saint-Simon made radical calls for administrative power to shift from political organs to "institutions associated with science and technology".[liv] Authority for Saint-Simon, and other positivists of his day, was to prioritize work above all else (for the total liquidation of the then-vestigial feudal class), shifting power from the domination of individuals to the control of things in the field of industrial production. This differences between Saint-Simon and Bell's ideal pseudo-political world based "on rationalism and technical efficiency" are fleeting.[lv]

By borrowing the language and promise of early industrialization's proponents, Bell shifts back and forth, in the end offering a meaningless potpourri which he packages as a model of a society-to-come: post-industrialism, in his telling, supersedes capitalism, while at the same time offering exactly what capitalism had, right down to the utopian visions it provided from the very beginning. Bell's capitalism, in its reported death, is actually just pushed further into the background as a "*condition humaine*", an eternal 'thing'. Bell purports to kill capitalism in theory in order to save it in practice. "For them [the capitalists], too, the concept of post-industrial society is a real find," noted the Soviet intellectual Ostrovitianov in his essay "Post-Industrial Civilization of Capitalism in the Year 2000?". "They have welcomed it as a scientific tranquilizer having the function of damping political passions, calming emotions, and introducing elements of appeasement and quiet into a sick and split society. The post-industrial theory in the form which Daniel Bell presents it is, despite numerous original conclusions and true observations, nothing but a method of adapting the ruling ideology to new historical conclusions, of preserving the existing system".[lvi]

Bell's thesis likely fell on extremely receptive ears precisely due to the fact that, at the time of its publication, crisis was indeed in the air. Published in 1974, the United States' withdrawal from the Bretton Woods accords in 1971 was still producing aftershocks.[lvii] The year before its publication, the Organization of Arab Petroleum Exporting

Countries, finding its member states embroiled in the Yom Kippur (or October) War with Israel, effected an oil embargo on their enemy and its allies, including the United States, but also including the United Kingdom, Canada, and Japan, among others.[lviii] Though Bell had been groping his way towards his landmark book for decades, its publication in 1974 lent his proclamation a greater audience and warmer reception than before. The timing and the message were both incredibly convenient to a shaken capitalist *coterie*.

The Informational Mode of Development

Manuel Castells is perhaps Daniel Bell's most forceful and celebrated acolyte—sharing with Bell a youthful Marxism that soured with age into bourgeois sycophancy and subsequently led to wide fame. Same as Bell, whose *The Coming of Post-Industrial Society* functioned as a palliative for the shaken Keynesian system of the 1970s, Castells' publication of *The Rise of the Network Society* (the first book of his *The Information Age* trilogy) was hailed not just for a new theoretical approach. There were apparently a good number of sociologists who went so far as to claim Castells had single-handedly saved sociology from malaise, leading to a "rebirth of sociology in its grand classical tradition" and saving the "queen of the sciences" from its state of "free fall".[lix] Giants of the discipline such as Anthony Giddens claimed that Castells' work deserves to be hagiographically slotted in along the work of Max Weber and (the antiseptic 'sociologist') Marx, comparing it to Weber's landmark *Economy and Society*.[lx] Castells' work was read far outside the academy, his concept of the network society appearing in the *Christian Science Monitor* and the *Wall Street Journal*.[lxi]

What is the network society? First and foremost, it is another ideological construct, sharing its core DNA with the idea of post-industrial society, in which changes in the surface character of labor and percieved technological progress militate to create a new social condition. Also, same as Bell, Castells occupied a position of the public intellectual, seemingly problematizing capital through a critical lens while in fact retrenching the natural inevitability of capital. He is one of those "intellectuals [who]

succeed in creating hegemony to the extent that they extend the world view of the rulers to the ruled".[lxii] Perhaps there is no better way to characterize Castells; similar to the way in which Bell proffered an escape route from the 1970s crisis, he makes a research project out of repackaging historical technochauvinism as objective science.[lxiii] William Anderson, though writing from a conservative-libertarian position, nevertheless poses an incisive question to Castells: "does he simply peddle the same old sociology with a techno-twist that appeals to the new suburban bourgeoisie and to an academia fatigued by the pointlessness of postmodern scholarship?"[lxiv]

The structure of Castells' argument is remarkably similar to the sketch of the post-industrial society as offered by Bell, though he is writing nearly 20 years later. One key difference between the two is that *The Information Age* carefully deploys vulgarized Marxist terms and concepts. In my opinion this is done precisely to appeal to the Marxism as a grand political-economic system. Bell's text had the luxury of being speculative. Castells, writing two decades on, is enmeshed within the so-called post-industrial society Bell predicted. He must necessarily be more rigorous and cautious in his approach.

Frank Webster summarizes Castells' arguments across his landmark trilogy: firstly, that we live under the auspices of a "new structure of stratification" (compare to Strange's knowledge structure) which centralizes "informational labour". This change reconfigures class society, killing off both the ruling and the working classes of old—beginning, similar to Bell, with a claim that capitalism is dead.[lxv] But Castells goes further: capitalism is dead, sure, but it is not merely the class struggle that is gone, but that political economy now presses on not under an industrial "mode of development" but a new *informational* outlay.[lxvi] In Castells' own words, the mode of development is another historical force which he pairs the Marxist mode of production. Modes of development "are the technological arrangements through which labor works on matter to generate the product, ultimately determining the level and quality of surplus".[lxvii]

The informational mode of development arises from the "the use of the means of production by the application of energy and knowledge".[lxviii]

The mode of development requires further scrutiny. It is a concept which offers a Marxist-sounding sociological rigor to historical stages by *somewhat* reinvesting in labor as the center of history. In his framework, the industrial mode of production was preceded by an agricultural one. This 'agricultural' mode of production, though not the focus here, pretty starkly shows off Castells' technochauvinist ideas about capitalism; he relegates all of pre-capitalist history and all pre-capitalist societies into a single, massive, abstracting container which contains the *overwhelming majority of human history*. For Castells, this history is terminated with the 'rise' of the industrial revolution "in the last third of the eighteenth century".[lxix] Once again, same as with Bell, history is presented as a slide deck of technological advancements: the industrial mode of production is "characterized by new technologies such as the steam engine, the spinning jenny, the Cort's process in metallurgy, and, more broadly, by the replacement of hand-tools by machines".[lxx] Susan Strange's warning—that the claim we are in a midst of a revolution is not equivalent to actually determining if there is a revolution on the ground or in the social sphere—once again is an essential rhetorical tool here. Though much has been written about the industrial revolution (and yes, it really does constitute a revolution, in the sense of being representative of the complete recomposition of social organization), Castells' presentation excludes the crucial narratives about labor and questions of political administration, instead investing technology itself with the role of revolutionary agent. His brief description of the character of the industrial revolution is "a sudden, unexpected surge of technological applications" which comes to transform "the processes of production and distribution, [create] a flurry of new products, and [shift] decisively the location of wealth and power in a planet that became suddenly within the reach of those countries and elites able to master the new technological system".[lxxi] This event simply appears, instead of working itself out from a system of "intersecting and opposing forces".[lxxii] The industrial mode of development is given similarly vague treatment. He defines it as driven the

"introduction of new energy sources, and in the ability to decentralize the use of energy throughout the production and circulation processes".[lxxiii] I will return to this in a minute.

For Castells, this innovation recuperates the bourgeois myth of the progressive city, with qualifications. He rightly points out that innovation is not an isolated instance, but then quickly determines that the "clusters" or "millieaux" in which innovation groups correspond to cities—specifically New York, Berlin, and Boston (a point he borrows from Hall & Preston's *The Carrier Wave*).[lxxiv] Regardless, the humans who live in these innovation clusters are far downstream from the technochauvinistic project: "the closer the relationship between the sites of innovation, production, and use of new technologies, the faster the transformation of societies, and the greater the positive feedback from social conditions on the general conditions for further innovation".[lxxv] Castells' revolution is technological; society and populations exist to be "permeated" by changes, to react to its direction and helpfully provide "positive feedback" to allow technology to continue its 'work' unabated.[lxxvi]

This is the same revolutionary aspect of technochauvinism is at play in Quayside; both are founded on a belief that places an idea of technological innovation in the very center of historical understanding, where 'revolution' is equivalent to 'solution', always solving away the old, underadvanced ways. Bianca Wylie characterizes Sidewalk's 'voice' when it comes to describing technological change as "[p]assive language, without agency".[lxxvii] This is, of course, not a mistake. The intention is that the vast productive machinery of Quayside is presented as having "just sprouted into the world, without creators or purchasers, without contracts or decisions", a program of "subtle normalization"—the technology itself is the agentic force![lxxviii] Don't look at us if you don't like it, Sidewalk may as well be saying, we're just the catalyst.

Castells' "information technology revolution" is similarly a product of rampant technochauvinism. In his words, the introduction of the transistor and microelectronics

kick off a diffusal of new technology that then undergoes a constitutive, synergistic process (leaking out into all facets of the "social fabric") which then converges "into a new paradigm" in the 1970s (what an auspicious decade!).[lxxix] This diffusal depends likewise on changes in the organization of production with the purpose developing "new manufacturing technologies and the use of an appropriate material"—silica.[lxxx] It's particularly illuminating that Castells' account of the revolution is exclusively fixated on the technological "quiddity". It begins with the original transistor, invented in 1947, and then proceeds on a hagiographic tour across the 20th century: next came Shockley's junction transistor, Texas Instruments' introduction of silica in manufacturing, the integrated circuit in 1957, and Fairchild Semiconductors' refinement of precision manufacturing in 1959, which enabled the grouping of large numbers of transistors on a single 'chip'. These last two constitute for Castells a crucial "revolutionary" moment in which circuit prices fell while manufacturing speeds increased (of course, helped along by the heavy presence of military money in the process in the United States).[lxxxi] This sequence of events lead to further investiture in the US and Japan in precision manufacturing and research and development, prompting Gordon Moore from Fairchild Semiconductors in 1965 to tautologize this process as an imminent Law, prophesying that the number of components on a chip would double every year. Moore's Law has roughly held since its inception (though Moore himself declared it would be dead soon in 2015).[lxxxii] This law provides Castells with objectivity for his claims that information technology has a revolutionary character, in a kind of bizarrely exponential adaptation of the phrase "quantity becomes quality". Nevermind that Moore's law is exclusively related not to sweeping technological advancement but very specifically to the abilities of labor and technoscience in the process of production, culminating in a very simple equation: "[b]y making things smaller, everything gets better".[lxxxiii]

Other concomitant technologies also appear in Castells' revolutionary history: the computer (and microcomputer), and also telecommunications. He spends pages excitedly tracing their histories as technological moments or "qualitative leaps"

emerging out of post-World War II society, culminating in the internet, which at its maximum creates his "network society". This society was born in the 1970s, and to his credit, Castells does make mention of a "major economic crisis" and "oil shock" which also occurred in the decade, as well as the aftermath of the "Sputnik shock".[lxxxiv] However, these are introduced briefly and cast aside quickly, only to imply that the old capitalism was on shaky ground and thereafter annihilated by its own contradictions. The fortuitous development of his pet technologies (transistor, microcomputers, telecoms) seems to reluctantly accept its new role as dominant techno-social force in a soft coup performed by "the autonomous dynamics of technological discovery and diffusion".[lxxxv] Painfully, and against all actual history, Castells' triumphant revolution shows up looking a lot more like a torch being passed. Robert Brenner's economic account of the Long Downturn offers a different explanation. In the midst of the crisis in capitalism in the 1970s, the capitalists made a conscious decision to break "beyond their dependence on Keynesian credit creation" in order to once again kickstart growth.[lxxxvi] "The consequences", he continues, were "largely unintended…[and] epoch-making".[lxxxvii] Brenner characterizes this as the selection of market dynamism over the relative stability of the Keynesian post-war period. "Construction, retail trade, and the non-traded goods sector more generally would now be favored to the detriment of manufacturing", he states, "as would consumption at the expense of investment, and imports and the expense of exports. The financial sector and financial markets would meanwhile take center stage".[lxxxviii]

This all leads to a world in which there is a "new, informational mode of development, the source of productivity lies in the technology of knowledge generation, information processing, and symbol communication".[lxxxix] but in "the action of knowledge upon knowledge itself".[xc] Castells labels this action "informational processing" which, in a "virtuous circle" is focused solely upon the improvement of the "technology of informational processing".[xci] Later, he clarifies further: "the products of new information technology industries are information-processing devices or information processing itself".[xcii]

Castells' information age is defined by a developmental mode freed from, if not material constraints altogether, than from the messy requirements of energy. In his cosmogeny, the passage from the industrial to the informational is contingent on the replacement of the primacy of energy in production with the primacy of autopoetic knowledge. Does this hold true? Of course not. One only needs to turn to recent discussions of fracking, the Keystone Pipeline, or various alternative energy technologies to see that energy concerns remain at the very heart of the production process. Further, to take Castells' own technological considerations to heart, there is the problem that information does not come from anywhere. As discussed at the end of the previous chapter, information (or data), if it has any existence in the context of the market and the creation of value, depends on the activity of labor to create that value. Castells ignores this. Further, information cannot perform an "action" on itself without the energy investiture of existing and new networks of extraction and circulation. The idea that the industrial mode, focused on energy diffusion, has been overcome, is egregious. The energy expenditure of the internet, for example, was estimated in 2016 to be 70 billion kilowatt-hours per year, and has doubtlessly risen since.[xciii] Castells' insistence that knowledge is a demiurgic force—that inexplicably, wealth can be generated from nothing, from the mind itself—completely disregards the enormous consumption required to sustain the informational arena. That aforementioned 70 billion kwh is equivalent to the combined output of 8 nuclear power plants or double (as of 2016) the United States' solar energy capacity.[xciv] And, let's not forget that energy generation is matched at the other end of the process by emissions: by 2020, it is projected that the energy usage of the combined internet will account for 3.5% of the world's emissions, projected for a rise to 14% by 2040.[xcv] In what is perhaps a further twist of the knife, the total combined power usage of bitcoin is projected to reach 48.16 terawatt-hours this year.[xcvi] Castells' world of knowledge, the reaching of heaven through techno-brilliant autopoesis, cannot disentangle itself from energy and thus the sticky realities of the material, the infrastructural, the industrial. Informational-wealth is simply a clever sleight of hand, a wink and a trick, a wry twist of industrial-wealth into

"something else" which wears an illusory "uniform" to obscure its character as the work of labor entering into a system of production.

This is not to make a specific ecological argument against Castells; to do so would consume the entirety of this thesis. The intention here is simply to note that Castells, despite his Marxist pretentions, trips over himself as he rushes to hold his technocratic standard aloft. The new regime of total disintegration, in which knowledge consistently refines and reproduces itself in a technological manner, cannot be separated from industrial mode of production by his own admission. If the informational mode of development exists, it in no way can be claimed to be outside or apart from the industrial mode which has not been sublated, or relegated in any way to history. The old, creaking industrial armature selectively enables informational development only as a particular, highly isolated aspect of what we can maybe call a higher stage of industrial development; it represents a particular method of harnessing industrial surplus and externalizing not just its basal accumulations but also, by way of a "cyberspace ideology", the entirety of the surplus altogether. Much as Europe constructed itself through a primitive accumulation which it has rendered invisible, knowledge *qua* knowledge colonizes labor, and proclaims it dead. If Castells' argument is at all relevant, it is only insofar as it describes the contingent historical development of today's (*petit*) bourgeoisie—which have become "workers of the immaterial intellect".[xcvii] If anything, he has prepared a palette cleanser for the continued structure of capitalist and intersectional violence. To use just one example, according to a recent paper on post-austerity Greece, 75% of surveyed households trade other essentials in order to have adequate heat in winter months.[xcviii]

Castells' new society comes with the introduction of a new class: an entrepreneurial social grouping of knowledge workers, the masters of the new economy, described as "manager-technocrats who 'control' but do not 'own' the means of production".[xcix] The benefit of this complication of the old bourgeois—proletarian class dyad of capitalism is that it works to blur the gap between the two, in favor of a fictitious "class unity" which

can all, the story goes, participate in the network society. Therefore, the entrepreneurs are both the gravediggers of the old classes and the vanguard of the network society, purportedly sweeping both proletariat and bourgeoisie into the dustbin of history or metamorphosing elements of them into his controlling "white collar" class. This argument is not as novel as Castells would perhaps like it to be. His argument bears a startling similarity to Frederick Winslow Taylor's "scientific management" of labor intrinsic to the industrial form. "Taylorism" is defined by, among other things, the "decisive separation of a knowledgeable management from a knowledge-less workforce….of mental from manual labor".[c] Durkheim, likewise, notes that in the industrial division of labor, the individual is "no longer anything but an inert piece of machinery, only an external force set going which always moves in the same direction and in the same way".[ci]

Durkheim hoped that the proletarian condition of machine-life was merely a transitory feature and the alienation then experienced was merely a transitional moment in the general development of the division of labor. Castells merely introduces a third pseudo-class by separating the powers of ownership and steersmanship over the means of production, leaving the first to the capitalist grand bourgeoisie and assigning the second to his informational class of petty bourgeoisie. This idea is seductive, leading to the appearance of "pseudo-AI" in which actual labor is hidden and packaged as the work of machines until true AI becomes available (if ever).[cii] Of course the task of simulating Castells' power fantasy into being would fall on the same working class it always has! All he has done is he has made the division of labor unworkable, has deepened the existing divisions until he can break the classes apart altogether and capitalist society itself disintegrates into the Castellian space of the network.

The Network Society offers soothsaying to the *petit*, or petty, bourgeoisie, who have found themselves in a world utterly transformed. Lukács understood this was their station in history: "[t]he petty bourgeoisie will only be able to play an active role in history as long as these objectives happen to coincide with the real economic interests of

capitalism".[ciii] The petty-bourgeois pseudo-class casts about for clarification on its position, finds the actual masters (the "grand bourgeois") mute and strangely powerless. "The position held by the capitalist class," Lukács clarifies, referring to the *whole* and unreconstituted bourgeois class (without Castells' illusory distinction), "and the interests which determine its actions *ensure that it will be unable to control its own system of production* even in theory".[civ] Despite the working of capitalist history into grand technochauvinistic systems of escalating progress, there isn't a soul that isn't flying blind. The market remains chaotic, despite the much-needed injection of 'knowledge'. Attempting to counter this, Castells offers up yet another pseudo-Marxist twist, this time on the concept of hegemony. He claims that in the network society the actual owners of capital and the means of production will begin to secede from society and the informational class is left to enact their hegemonic demands. Clearly, this is yet another way of keeping the nascent insurgency of the non-informational at bay. 'Look to the informational class, existing in a world of pure information and untrammeled freedom!' goes the narrative. 'You can join them too—simply sink yourself into the flow of information and learn the method of its command'. This is perfectly designed to legitimate the informational class' power by cracking open the door to enter it. To enter, or more importantly, to *strive to enter* the ruling class (and thus to adopt its core imperatives), it all that matters; it constitutes the one argument Castells' class has in favor of its legitimacy.

Castells tries desperately to offer sense, an emergent logic, to the latest permutation of an inherently unstable system, and at the end is in fact able to do so. But to get to this end point he had to first redefine the relationship between technology and society along his own technochauvinistic lines, which he then presents as objective science. In so doing, Castells employs the same trick which Lukács identifies almost 80 years earlier: those in power "seek refuge in the methods of natural science, in the way in which science distills 'pure' facts and places them in the relevant contexts by means of observation, abstraction and experiment".[cv] This abstraction becomes a tautology: the network society, founded on the principles Castells lays out, of course conforms

perfectly to his supposedly empirical assessment. This is only by virtue of his ability to command and define the limits of the experimental field, which he claims is world-historical society but is in fact an economic pseudo-class. "The 'pure' facts of the natural sciences arise when a phenomenon of the real world is placed (in thought or in reality) into an environment where its laws can be inspected without outside interference. This process is reinforced by reducing the phenomena to their purely quantitative essence, "to their expression in numbers and numerical relations".[cvi]

Peripheral fordism and savage development

The unifying characteristic of post-industrial accounts, above all, is their shared venality. If Bell and Castells constitute a sort of epistemic Klein bottle, pouring the bourgeoisie's own ideology back to them as social science, then it is essential to listen to counter-historical narratives from outside the ruling class and outside of the Euro-American academic universe. Within this milieu, post-industrial society is the latest in an exhaustingly long line of 'modernizing' projects. Modernization is a name for the avenue of contemporary capitalism which pushes industrial toil to the periphery—to the Global South, to the great majority of the world, to the "underdeveloped" countries—in order to allow the relative developmental heights of "post-industrial" luxury in the Euro-American countries. Global history is the story of labor which is made to disappear from the eyes of the ruling class, reaching a particular intensification with the colonialist and imperialist stages of capitalist expansion, as capitalist powers found themselves thrown across the world in a never-ending search for new resources, workers, and markets.

The purpose of this section is to nail Sidewalk to the wall by analyzing what it represents at the widest possible scales. Technological objects and artifacts have historically not disrupted the structure of power, but buttressed it. Eula Biss tracks the presence of something as innocuous as telephone poles as loci for racial violence: "[t]he poles, of course, were not to blame. It was only coincidence that they became convenient as gallows, because they were tall and straight, with a crossbar, and because

they stood in public places. And it was only coincidence that the telephone pole so closely resembled a crucifix".[cvii] A long history of brutality, atrocity, and terror—the history of capitalism—comes home to roost in the "post-industrial" technological utopia of Quayside. This statement may seem absurd, but this is by design: "[i]t seems almost too vulgar to evoke human misery as a consequence of war, displacement, and work as part of the hip, cosmopolitan global assemblage that is the main stuff of social theoretical production".[cviii] Seething underneath every technological advancement is, in a very literal way, the blood of populations which have been oppressed for centuries; whispered against every proclamation that a new future is here is an ocean of humanity which has been exploited so a chosen elite can enjoy luxury they will never know. The story of Quayside is the story of capitalism, and the story of capitalism is a horror.

H.L.T. Quan's *Growth Against Democracy* offers the adumbrating concept of "savage developmentalism" to characterize what I would call a particularly "post-industrial" update of this same brutal expansion. Savage developmentalism is "a developmentality that has *reasoned violence and antidemocracy as progress and life*, while simultaneously insinuating itself into the deep structure of modern thought" (emphasis added).[cix] Savage developmentalism depends on naturalizations and capitalist mythologies such as the post-industrial to render the content in capitalism a crucial aspect of human history and individual existence and, in doing so, legitimize its existence as a monstrous war machine which takes a "structured otherness" as its foil.[cx] It is the materialization of the bourgeoisie's historical technochauvinism at a planetary register, "a symptom of a savage mind and a civilization that can neither control itself nor define its destiny".[cxi] When Quan writes of *destiny* here, this is not an abstract evolution of greater technological control like Bell and Castells' cosmologies, but more like a gibbering psychosis on the part of the ruling class—driven by a ravenous compulsion to maximize wealth (*qua* surplus value), they necessarily commit to a program of savagery and developmentalism which is only modified by socio-economic conditions, but never abolished. This compulsion is driven by and drives capitalism's own expansion. For Quan, the savagery (defined as "cruel, ungovernable, and uncontrollable") of capitalism

is an anesthetized characteristic good citizens of the Euro-American countries are trained to avoid; thus the "post-industrial" fiction which uses theory to remove exploitation from view.

In the contemporary world, the ruling class has generated a rhetoric and supporting institutions to ensure development is expressed in ways which are carefully non-technological and non-ideological. Development today speaks neutrally and attacks mercilessly. Quan offers a litany of examples to prove this point. She mentions the United States' infamously disasterous program for rice subsidies in Haiti—where, under the auspices of developmental aid, the US enacted economic programs which turned Haiti from a country with nearly self-sufficient food production to "a nation of farmers can no longer feed itself".[cxii] By offering the country enormous amounts of money ($54 million annually from 1985-88) to re-orient 30% of its food production towards export under the Caribbean Basin Initiative, the US introduced widespread famine through market coercion. The farmers (mostly peasants) who found themselves producing food for export were to be "paid off" from the US's food aid while more advanced agricultural techniques allowed the remaining domestic food production to pick up the slack.

In reality, Haitian self-sufficiency was annihilated as the scarcity of domestic food prompted a rise in prices, and cheap American food exports appeared on the market undercutting local prices. America's 'aid' instead made Haiti an effective client state, utterly dependent on American exports while at the same time forced to send its own crops for export into the market, in a debased cycle that continues to this day. In 2010, former President Bill Clinton rather sheepishly admitted the project was a humanitarian disaster: "[i]t may have been good for some of my farmers in Arkansas, but it has not worked".[cxiii] Despite this, 'aid' money continues to flow, rising from the 1980s' relatively paltry numbers to a worldwide expenditure of $557.5 million in 2014.[cxiv]

The smart city outside the Euro-American states is often even more explicitly invested with notions of internal development. India's Ministry of Urban Development, under the orders of Prime Minister Nerandra Modi and with $15 billion USD to spend, announced in 2016, is undertaking development *qua* smartness at scale, with the intent of creating 100 smart cities and retrofitting 500 others.[cxv] According to a report by Dutch consultancy Deloitte, China intends to build 100 smart cities of its own within the 2016-2020, included in the total of 500 which have been piloted.[cxvi]

The new world order looks a lot like the last one when viewed from this angle. The political complicity of Bell, Castells, and countless others is held up and excoriated throughout Cedric J. Robinson's *The Terms of Order* as predicated on rationalizing power by providing theoretical heft to ideological action.[cxvii] The post-industrial concept is intended to foreclose on discussions like those which swirl around the literal slaughter in rosy-cheeked projects like the Caribbean Basin Initiative by removing the possibility of discussion from "polite" discourse. It supplies a planetary hologram of order which comes to replace the anesthetized chaos of reality.

That hologram of order also furthers the exploitation of labor. Some production no longer is profitable; the new production occurs for and by the international market (which is to say, lives and dies by the caprices of global capitalism). It allows the fiction of knowledge work to exist by fading from view unless it appears in a specific, highly automated, and aesthetic-facing way (such as IBM's fabs or Sidewalk's proposed on site tall timber factory, these places are less factories than brewery tours). Even the commodity chains of materials which produce the accoutrement of the post-industrial elite fade and blur at far enough remove; just-in-time manufacturing (such as 3D printing and related technologies) is enabled only by centuries of extractive violence.[cxviii]

I previously mentioned Alain Lipietz's concept of "peripheral fordism". Fordism, for the sake of simplicity, refers to the post-World War II industrial-economic alignment

and pattern of "intensive accumulation" achieved under scientific work organization, which fell into crisis in the 1970s.[cxix] The periphery implies a core; these were the usual players of the Euro-American world plus Japan, and after the fall of the USSR, the Russian Federation. Under fordism, "the 'outside world' appeared as a giant thermostat regulating capitalist growth: it provided a market for the finished goods of capitalist industry, offering, in exchange, raw materials and labour for export".[cxx] Around the rise of the post-industrial society in the 1960s, the global periphery was itself industrializing, introducing huge upsets in the core industrial powers as commodities from former 'client states' suddenly became threats to established industrial capitals. This forced a radical reinterpretation of the world, in which the peripheral countries could not, for the first time, be defined social-chauvinistically be their relation to the core.[cxxi] I want to highlight here the specific role, alluded to above by Cedric J. Robinson, that the social sciences took in "running interference" for this potential crisis of political economy. As the former 'cores' pivoted from industrial dominance to financing formerly 'peripheral' industrialization, the resultant loss of core domestic production produced waves of unemployment, disinvestment, and social unrest, culminating in the wildfire of 1968. Against this, social science began to slowly piece together a new mythology that not only accomodated but ratified these changes as the birth of a new world, instead of the collapse of the old one (an error message, not an apocalyptic prophecy). Thus the explosion of possible world orders that arose throughout this time, shifting the focus from stability and regulation to turbulence and freedom, claiming that new technologies were the future so as to leave the up-and-coming peripheral capitals to the past. The resulting hologram of order began first with a sober acknowledgement that manufacturing had disappeared, but promised that its replacement would solve the contradictions present before and introduce a time of massive wealth and progress. In doing so, once again the need to reckon with the periphery, or the Global South and the brutality against the majority, fades into the background.

This line of argumentation appears in an almost too-perfect form in Quayside; labor disappears underground, maintenance is machinic, the city pulses with connectivity,

and the old industrial docklands become the celebrated substrate of future growth. In trumpeting its ability to build utopia out of devastation, Sidewalk points out that several of its leadership were responsible for "the redevelopment of Lower Manhattan after September 11"—meant to be an analogue for the devastation of Toronto's waterfront.[cxxii] This is an imperial project. The ramifications of this should give pause.

An ending

While capitalism continues unabated, the wholesale embrace of post-industrial narratives also illuminates the lockstep complicity between the cultural intelligentsia and the scions of the market in engineering epistemological conditions in support of market perturbations. These intelligentsia, and the disciplinary sciences they uphold, treat the particular conditions and crises of their milieu as eternal laws or historical inevitabilities, lending capital the appearance of moving forward even as it crumbles further into decline. The horror of the crisis is paired with the triumphalism of the epoch.

A confrontation with the contradictions of capitalism—that is, the fundamental, structural, self-inflicted wounds that continuously appear—must be either explained away or declared 'not all that bad'. Lukács takes aim at this tendency to "evade…confrontation by confining oneself to the analysis of isolated aspects in one or other of the special disciplines".[cxxiii] The relationship between capitalism and the sciences and humanities is mutually beneficial; capitalism recieves an 'empirical' new mythology and the disciplines turn this mythology into money. "The attitude that inspires monographs", notes Lukács, "is the best way to place a screen before the problem".[cxxiv] Again, we can return to Cedric J. Robinson's *The Terms of Order* for further explication. Borrowing from Thomas Kuhn, Robinson describes the complicity of the disciplines as "normal science", occupied with confirming paradigmatic presumptions.[cxxv] In urban sociology, these presumptions emanate from a desire to make sense of market turbulence, of an urban downturn answered by a market

renaissance, and of increased technochauvinistic tendencies in play in urban life. Too often, urban studies wallows in a purely descriptive mode, having cordoned the urban subject off from the world as a whole, and therefore refuses to comprehend anything which may lie outside its purview.

The intention here is not to indict urban studies or related disciplines, but rather to position this thesis against its usual view of the world. I have written it with the intention of humbly offering up the suggestion that we do not just mistrust the actions of capitalist technochauvinism in our cities and our homes, but act against them. If this thesis seems far-ranging and abstract, that is because capitalism and oppression is planetary and its systems of power occulted. Nevertheless, I still have some faith in the urban as both a subject of critique and a possible vector of liberation. Not as it is, but in what it can be—an urbanity against states, against markets, against the unevenness inherent in itself, which dissolves local differences in global liberation.

NOTES

[i] Sidewalk Labs, "Request for Proposals: Innovation and Funding Partner for the Quayside Development Opportunity."

[ii] Sidewalk Labs.

[iii] Kumar, *Prophecy and Progress: The Sociology of Industrial and Post-Industrial Society*, 74.

[iv] Kumar, 74.

[v] Kumar, 74.

[vi] Doctoroff, "Dan Doctoroff on How We'll Realize the Promise of Urban Innovation | McKinsey."

[vii] Wood, *The Origin of Capitalism*, 47.

[viii] Wood, 47.

[ix] Wood, "Capitalism, Merchants and Bourgeois Revolution: Reflections on the Brenner Debate and Its Sequel," 212.

[x] Fisher, *Capitalist Realism*, 5–6.

[xi] Wood, "Capitalism, Merchants and Bourgeois Revolution: Reflections on the Brenner Debate and Its Sequel," 212.

[xii] Marx, "The German Ideology."

[xiii] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*, 148.

[xiv] Bloomer, "Abodes of Theory and Flesh."

[xv] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*, 21.

[xvi] Clark, "Who Constructed Post-Industrial Society?"

[xvii] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*, 9.

[xviii] "Alain Lipietz, Towards Global Fordism?"

[xix] Robinson and Edwards, *The Terms of Order*, 3.

[xx] Baudrillard, *The Agony of Power*, 92.

[xxi] Ehrenfeucht, "The New Regionalism: A Conversation with Edward Soja," 8.

[xxii] Baudrillard, *The Agony of Power*, 93.

[xxiii] Figure from proposed full residency of 5,000 people on 12 acre site, as reported in Sidewalk Labs, "Project Update."

[xxiv] Châtelet, *To Live and Think Like Pigs: The Incitement of Envy and Boredom in Market Democracies*, 119.

[xxv] Brenner, "The Roots of the Crisis in the Real Economy."

[xxvi] These concepts are, for the most part, nebulous and diffusely developed by a multiplicity of authors. Foremost would be Manuel Castells, with his *The Information Age* trilogy of books, beginning with *The Rise of the Network Society* in 1996, building from Jan van Dijk's original use of the term "network society" in 1991. The Information Age is closely tied to, or in some histories, a direct result of the so-called "Digital

Revolution", which lacks a definite theoretical thrust but is largely identified with the work of Bell Labs scientist Claude E. Shannon's work on computerization. Semiocapitalism is a periodization originally outlined by Jean Baudrillard and later picked up by Paul Virilio; its close twin, cognitive capitalism, is defined similarly as a new capitalism dependent on immaterial objects and commodities for value. Surveillance capitalism, propounded by Shoshanna Zuboff, focuses explicitly on the techno-corporate, digitally aided theft of privacy that characterizes the age. Finally, and perhaps as an outlier, the Anthropocene claims a geological shift, in which *Anthropos* has wreaked havoc on the planet—often pinned to the runaway privations of industrialism which reached a head and have now, in some way altered the character of 'Nature' in itself. The common thread connecting these disparate, yet analogous tendencies is the declaration that things have changed, that the totality has mutated; it is precisely this mutation that is the focus of this section.

[xxvii] Châtelet, *To Live and Think Like Pigs: The Incitement of Envy and Boredom in Market Democracies*.

[xxviii] Fuchs, "Marx's Capital in the Information Age."

[xxix] Fuchs.

[xxx] Wood, 47.

[xxxi] https://www.facebook.com/reidhwilson, "Watch the U.S. Transition from a Manufacturing Economy to a Service Economy, in One Gif."

[xxxii] Marx, *Grundrisse: Foundations of the Critique of Political Economy*, 690.

[xxxiii] Marx, 704.

[xxxiv] Winick, "Every Study We Could Find on What Automation Will Do to Jobs, in One Chart."

[xxxv] Broussard, *Artificial Unintelligence*, 358.

[xxxvi] Brenner, "What Is Good for Goldman Sachs Is Good for America The Origins of the Present Crisis."

[xxxvii] Aggarwala, "The First Principles of Urbanism."

[xxxviii] Lukács, "Technology and Social Relations."

[xxxix] Lukács.

[xl] Lasch and Bell, "An Exchange on Post-Industrial Society."

[xli] Lasch and Bell.

[xlii] Lasch and Bell.

[xliii] Lasch and Bell, "An Exchange on Post-Industrial Society."

[xliv] Marx, *The Poverty of Philosophy*.

[xlv] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*.

[xlvi] Lukács.

[xlvii] Lasch and Bell, "An Exchange on Post-Industrial Society."

[xlviii] Lasch and Bell.

[xlix] Strange, *States and Markets*, 117.

[l] Strange, 117.

[li] Lukács, *Lenin: A Study on the Unity of His Thought*, 53.

[lii] Lasch and Bell, "An Exchange on Post-Industrial Society."

[liii] Lukács, *Lenin: A Study on the Unity of His Thought*, 53.

[liv] Smith, *Early Modern Social Theory*, 81.

[lv] Ferkiss, "Daniel Bell's Concept of Post-Industrial Society."

[lvi] Kelley, "The Soviet Debate on the Convergence of the American & Soviet Systems."

[lvii] "About the IMF: History: The End of the Bretton Woods System (1972–81)."

[lviii] Cole, "Iraq and the Israeli-Palestinian Conflict in the Twentieth Century."

[lix] Anderson, "Manuel Castells and the Decline of Twentieth-Century Sociology."

[lx] Anderson.

[lxi] Anderson.

[lxii] Bates, "Gramsci and the Theory of Hegemony."

[lxiii] Castells and the enormous school of "x-Marxist" thought suffer from the same misunderstanding of the dialectic as Engels, in Lukács' withering denunciation of his *Anti-Dühring* in *History and Class Consciousness*: Engels debases dialectics into a metaphysic by being unable to dispense with concepts and objects, however "fluid" he may state them to be. As such, dialectics loses its revolutionary character as a study of laws of motion and tendency, wherein "The theory [which dialectics becomes under Engels] might then be accepted or rejected in accordance with the prevailing state of science without any modification at all to one's basic attitudes, to the question of whether or not reality can be changed."

[lxiv] Anderson, "Manuel Castells and the Decline of Twentieth-Century Sociology."

[lxv] Webster, "Is This the Information Age?"

[lxvi] Castells, *The Rise of the Network Society*, 102.

[lxvii] Castells, 102.

[lxviii] Castells, *The Rise of the Network Society*. Note here that knowledge, in Castells' usage, is a question of technique, which is to say technology.

[lxix] Castells, *The Rise of the Network Society*, 130.

[lxx] Castells, 130.

[lxxi] Castells, 132.

[lxxii] Lukács, *Lenin: A Study on the Unity of His Thought*, 44.

[lxxiii] Castells, *The Rise of the Network Society*, 102.

[lxxiv] Castells, 132.

[lxxv] Castells, 131.

[lxxvi] Castells, 135.

[lxxvii] Wylie, "Sidewalk Toronto."

[lxxviii] Wylie.

[lxxix] Castells, *The Rise of the Network Society*, 138.

[lxxx] Castells, 138.

[lxxxi] Castells, 139.

[lxxxii] Courtland, "Gordon Moore."

[lxxxiii] Courtland.

[lxxxiv] Castells, *The Rise of the Network Society*, 166.

[lxxxv] Castells, 167.

[lxxxvi] Brenner, "What Is Good for Goldman Sachs Is Good for America The Origins of the Present Crisis."

[lxxxvii] Brenner.

[lxxxviii] Brenner.

[lxxxix] Castells, *The Rise of the Network Society*.

[xc] Castells.

[xci] Castells, 103.

[xcii] Castells, 103.

[xciii] Helman, "Berkeley Lab."

[xciv] Helman.

[xcv] News and Network, "'Tsunami of Data' Could Consume One Fifth of Global Electricity by 2025."

[xcvi] "Bitcoin Energy Consumption Index."

[xcvii] Badiou, *The Rebirth of History*.

[xcviii] Petrova and Prodromidou, "Everyday Politics of Austerity."

[xcix] Kelley, "The Soviet Debate on the Convergence of the American & Soviet Systems."

[c] Kumar, *Prophecy and Progress: The Sociology of Industrial and Post-Industrial Society*, 87.

[ci] Durkheim, *The Division of Labor in Society*, 371.

[cii] Solon, "The Rise of 'Pseudo-AI.'"

[ciii] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*, 132.

[civ] Lukács, 135–36.

[cv] Lukács, 18.

[cvi] Lukács, 19.

[cvii] Biss, "Time and Distance Overcome," 86.

[cviii] Quan, *Growth against Democracy*, 11.

[cix] Quan, 9.

[cx] Quan, 10.

[cxi] Quan, 10.

[cxii] "How the United States Crippled Haiti's Rice Industry."

[cxiii] Doyle, "US Urged to Stop Haiti Rice Subsidies."

[cxiv] OECD, "Total Official and Private Flows (Indicator)."

[cxv] Ministry of Urban Development, Government of India, "Smart City Mission Transform-Nation: Mission Statement and Guidelines."

[cxvi] Rob Dubbeldeman and Stephen Ward, "Smart Cities: How Rapid Advances in Technology Are Reshaping Our Economy and Society."

[cxvii] Robinson and Edwards, *The Terms of Order*.

[cxviii] McMichael, *Development and Social Change*.

[cxix] Lipietz, "Alain Lipietz, Towards Global Fordism?"

[cxx] Lipietz.

[cxxi] Lipietz.

[cxxii] Sidewalk Labs, "Request for Proposals: Innovation and Funding Partner for the Quayside Development Opportunity."

[cxxiii] Lukács, *History and Class Consciousness: Studies in Marxist Dialectics*, 71.

[cxxiv] Lukács, 70.

[cxxv] Robinson and Edwards, *The Terms of Order*, 10.