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ABSTRACT

This dissertation asks what it means to frame climate change as a problem of urban design in a Scandinavian port city, and then locates that question within a genealogy of evolutionary thought. Through an ethnography of green infrastructure design and experience in the Danish Capital Region, it follows Copenhagen Municipality's Climate Plan to build the world's first carbon-neutral capital, and by extension, to shape a citizenry equipped to realize its promise. The dissertation is fundamentally concerned with material and discursive practices of future-making, and more broadly, 'sustainable development' in a city presently enacted as a green design prototype, as well as the situated practices required to advance its iteration. To that end it traces the cultural geometries and racialized imaginaries that delineate the Danish model through a detailed ethnographic rendering.

As a performative artifact, the Danish model stages an interactive mockup of a fully optimizable urban future, from climate-adapted districts and the green transit systems connecting them right up to and including perfected people. In this 'future-proof' built environment, human inhabitants appear as design objects themselves, physically molded and spatially sorted via a reproductive geography of imagination and management. Most simply, *Future Perfect* argues that the aspirational project of prototyping Copenhagen—the iteration of a seamless city, populated by perfected people and objects—can be grasped as a contemporary expression of eugenic ideology.

INTRODUCTION

DANISH DESIGN 'DNA'

"Copenhagen wants to be the best cycling city in the world, and we don't want to have much discussion with Amsterdam about it," quipped Finn, a civil engineer with the Danish construction consultancy Rambøll and leader of a bicycle infrastructure study tour at which I tagged along. Finn's playful barb elicited a few snickers among the Dutch delegation of politicians and urban planners who had come to Copenhagen to study the city's bicycle transit policy and design in March of 2018. To this participant-observer, the pseudo-rivalry between the two North European capitals for superlative bike culture credentials seemed friendly yet not so pseudo. While both cities boast over 400 kilometers of dedicated bicycle infrastructure on which half of their metropolitan populations travel to work or school daily, the signal difference between them, according to Finn, is fundamentally a matter of style. He attributed what he perceived as Copenhagen's edge in this regard to the distinction of Danish design:

> Design is in our DNA. Ask any Dane to name the designer of every lamp and every piece of furniture in their house. We simply do not tolerate bad design. This is why when we build a bike lane, it must be beautiful—people will not accept it otherwise. It must also be functional of course; otherwise it's just stupid.

To illustrate the point, Finn directed the group's attention to an inconspicuous bike lane at Vester Voldgade, an arterial road that runs alongside Rådhuspladsen (City Hall Square), where we'd paused our tour **[Figure 1.1].** The cycle track had been integrated with the plaza's gray granite checkerboard as a virtually seamless extension. Apart from the cobbled camouflage, the track had all the elements of the "Copenhagen style": raised curb; double-width for passing and chatting; bicycle icon rendered in white paint. This last feature, Finn explained, had been a hard-

won stylistic concession. Initially the ghost lane's granite paving stones—while consistent with the plaza's stately expanse—proved to be hazardously discreet, and contributed to a spate of traffic accidents with unsuspecting pedestrians. Yet form had to follow function, and so a series of bicycle icons were ultimately added.

I observed dozens of such demonstrations while undertaking an ethnographic study of Copenhagen Muncipality's Climate Plan to build the world's first carbon-neutral capital, and by extension, to shape a citizenry equipped to realize its promise. As I followed the second phase of these efforts unfold between 2016-2018, I witnessed strikingly similar testimonials to the cultivation of Danish design sensibilities as a cultural achievement among urban planners and lay Copenhageners alike. While Finn's reference to Danish design 'DNA' is jokingly overdetermined, it touches on a deeper connection between evolutionary thought and Modernist design well established in art historical scholarship. In "Ornament and Crime" (1913), for instance, an exemplary text in that genre, Austrian architect Adolf Loos famously rails against the use of extraneous elements in modern design, which he believed was a sign of moral and spiritual degeneration: "The evolution of culture marches with the elimination of ornament from useful objects" (Conrads 1975:23), he wrote. Loos was evidently prompted to write the essay over a furor incited by a spare facade he had designed for a tailor shop and apartment block sited opposite Vienna's imperial palace. He ultimately conceded to building authorities' demands by adding flowerboxes to the structure's windows.

As art historian Christina Cogdell has persuasively argued in her study of the intersection of streamline design with eugenic thought (2004), in the decades following the turn of the twentieth century, evolutionary thinking in its various guises "served as a common ideological foundation upon which modernists in almost every field constructed their work, arguments, and

perceptions of the world and themselves, either consciously or unconsciously" (2004:5). It's not surprising, then, that eugenic ideology would inflect the discourse of Danish Modern, a functionalist style of furniture and housewares that emerged in parallel with Denmark's state-sanctioned eugenics program, active from 1929-1967. Yet this dissertation is not an ethnographic study of Danish Modern (cf. Murphy 2015), nor is it an historical account of Denmark's eugenics program, which would require dedicated archival research. I am concerned rather with the inflections of Modernist ideals and evolutionary thought in Danish green design, which, I will argue, can be understood as a contemporary expression of eugenic ideology.

Architectural historian Adrian Forty (1986) has called for a closer critical examination of the economic and ideological dimensions of design, which he suggests tend to be obscured by a focus on form and function. As Lucy Suchman and colleagues (2002:166) have pointed out, design's historical alignment with the emergence of the professions has produced a situation in which "making things has come to be more and more the exclusive provenance of those with the credentials to do so, while things made are correspondingly more esoteric." Toward a critical anthropology of green design in Denmark today, *Future Perfect* accepts Suchman's invitation to sketch an ethnographic portrait of "the cultural imaginaries and micropolitics that delineate design's promises and practices" (2011:4). Let me begin this discussion by outlining some of Copenhagen's promises and projections.

The Copenhagen Diagnosis

As a low-lying[1] port city, the Danish Capital is particularly vulnerable to coastal flooding due to sea-level change; even more so than the water-bound Norwegian capital of Oslo. While just 600 kilometers separate these two cities, their climate futures look rather different. Due to some-mind-bending physics,[2] sea-level change proceeds unevenly across the earth's surface. For this reason, under the "business-as-usual" scenario spelled out by the United Nations Intergovernmental Panel on Climate Change (IPCC), a trajectory which assumes that greenhouse gas emissions will continue to increase unabated, there is a 50% chance that local sea-level rise will exceed 68 centimeters in Copenhagen by 2100—three times that of Oslo's projection. (Colgan et al. 2018). To put that figure in perspective, globally, the ocean has risen an average of 24 centimeters since 1850 (Colgan & Box 2016). Given that roughly 50% of the island of Amager stands at one meter or below, these lower-lying tracts of land will range from being fully submerged to 32 centimeters away from it by 2100. In the fifth chapter, I discuss in detail the Municipality's efforts to fortify the urban built environment for precisely these kind of climatic threats as well as model these efforts as 'design solutions' for a global audience.

Perhaps driven by naked self-interest (as well as faith in metrics), Copenhagen Municipality landed on carbon neutrality[3] as the guiding logic of its mitigation strategy. Rooted

[1] Copenhagen's highest elevation is 91 meters in the northwest; its lowest is minus four meters on the island of Amager.

[2] Because ocean mass is gravitationally redistributed unevenly across the earth's surface, sea level has risen in some places and fallen in others. As massive ice sheets diminish with warming temperatures, so too do their gravitational fields. In the process, seawater previously held flush against the ice sheets is released to slosh elsewhere on Earth (see Colgan et al. 2018). Yet just as a sponge rebounds after being rung out, some crustal surfaces will rise up. For this reason the UNIPCC uses the term sea-level *change* rather than *rise*.

[3] Briefly, carbon-neutrality refers to the condition of net-zero carbon dioxide emissions achieved through one or both of two methods. First, carbon emissions can be eliminated by transitioning to renewable energy and improving the efficiency of technology and energy systems. Second,

in climate science as well as the promotional world of green city branding, the strategy emerged from the eponymous *Copenhagen Diagnosis: Updating the World on the Latest Climate Science*, a public-facing executive summary of peer-reviewed scientific literature presented at the 15th annual UN Climate Change Summit known as COP-15, which Copenhagen hosted in December 2009. The authors, all of whom hail from North America, Europe, and Australia, inform "the world" of their collective diagnosis of climate change's anthropogenic origin via eight planks. Planks one through seven summarize the ecosystemic effects of surging greenhouse gas emissions and revise existing predictions concerning 'tipping points' for unmitigated sea level change; plank eight outlines a treatment plan for the diagnosis: a decarbonized 'global society.' In order to limit global warming to a maximum of 2 degrees Celsius above pre-industrial levels, the report advises that "the turning point must come soon," suggesting that emissions should peak between 2015 and 2020 with a per-capita limit to one metric ton of carbon dioxide by 2050. To put this last figure in perspective, this target is 80-95% below per-capita emissions of countries in the Global North in the year 2000.

From the Copenhagen Diagnosis and global prescription emerged the Danish capital's Climate Plan to become carbon-neutral[1] by 2025. Introduced in 2009 with unanimous support in the Copenhagen City Council, the policy outlines a master plan for carbon emissions reduction via infrastructure development across three key sectors: renewable energy production[2] (e.g.

carbon offsets compensate for emissions with activities or projects that increase carbon absorption, such as tree planting.

[2] Wind energy is big business in Denmark, which began investing in wind research and development following the oil shock of 1973. The Danish companies Vestas and Siemens Gamesa were responsible for almost one-third of global wind turbine installations in 2018, according to Danish data. In 2020 biogas, which is extracted from the large Danish agricultural industry, accounts for two-thirds of national energy production.

wind, solar, biogas, and geothermal); green mobility (e.g. decarbonized mass transit and bicycle infrastructure); and energy efficient renovations of public infrastructures and building stock (e.g. street lighting, district heating and municipal construction). The Climate Plan and its multiple subsidiary strategies are components of regional and national efforts toward climate change mitigation. At a national scale, the Danish government has pledged to become fossil-free by 2050 and aims for renewables to cover at least half of the country's total energy consumption by 2030.

The Municipality strategically staged the Climate Plan's rollout to coincide with COP-15 and by extension the presentation of the Copenhagen Diagnosis. The Copenhagen Summit, or 'Hopenhagen,' as the convention was branded in a UN-commissioned advertising campaign, convened to negotiate and ratify a substantive successor to the toothless Kyoto Protocol established in 1997. Yet as talks wore on at the famously dysfunctional meetings, "Hopenhagen" began to look more like "Nopenhagen," as Amy Goodman (2009) wryly put it. Klaus Bondam, Mayor of the Municipality's Technical and Environmental Administration at the time, minced no words when I met with him in the fall of 2017. "It was a complete disaster. We all thought it was going to happen. *Seal the deal!*" Klaus grabbed a brass stamp inscribed with these words—a tragic artifact of the Hopenhagen ad campaign—and slammed it onto the conference table between us. "We thought we were going to have the Copenhagen Agreement. That was why we invested so much before [in the Climate Plan]—because we wanted our city to be an example for the rest of the world." While COP-15 is widely regarded as a 'political disaster'—within Denmark and worldwide— for its failure to produce a binding global climate treaty, its host city has nonetheless forged ahead with its mission to become an "example" for "the world." In a sense, then, the legacy of a failed exercise in green city branding is a municipal climate policy.

Klaus put it this way: “What was so visible during Hopenhagen was that we realized that they couldn’t agree out there [at the summit]. It suddenly became obvious that cities can do what nation-states are not able to.” In effect, one could say that the prospect of brokering the ultimately ill-fated Copenhagen Agreement, despite or perhaps because of its much-maligned failure, reframed the wicked problem of climate change as ‘manageable’ in the Danish technocratic imaginary as an urban design challenge. Taken together, the Climate Plan’s multiple substrategies render conceivable the transformation of a low-lying port city into a climate capital of tomorrow through design thinking. This futuristic eco-metropolis, as we shall see, is positioned as both *model of* and *model for* a 21st Century iteration of eugenic design.

Design with a small ‘d’

In her reflections on design as an anthropological keyword, Lucy Suchman (2018) outlines a set of historical tendencies in professional design discourse that have advanced hegemonic claims to “adjudicate the question of whose knowledges are relevant” to collective future-making. Briefly, a few of those tendencies include *grandiosity*, or universal claim- and dream-making; *progressivism*, or mapping trajectories of development from us to them, to a new us; and finally, *parochialism*, or engaging in “conversations with each other, on behalf of everyone.” By these metrics, Copenhagen’s Climate Plan presents a case study *par excellence* in precisely this kind of hegemonic claim-making. In the service of reclaiming the term *design* in order to refashion it, Suchman suggests attending to the tensions inherent in projects invested in transformative change as “‘small d’ design, without reproducing the supremacy of Design with that initial capital letter.” To that end this dissertation offers one small contribution.

An ethnographic rather than art historical investigation of green design in Denmark shows two things. First, in its attention to local social enactments of *form-giving,* which is a direct translation of the Danish term for design, it traces the ideological contours of what Keith Murphy (2015:1) calls the 'subliminal semiosis' of a social-democratically inflected Scandinavian Modernism. Yet my analysis goes further. Fundamentally, *Future Perfect* argues for a genealogical connection between green design and progressive welfarist projects that sought to build 'better' bodies, their purported races, and their subsequent generations. Second, and more broadly, it depicts an ethnographic portrait of Danish welfare society amid mounting anxieties about the 'social sustainability' of collective protections and enrichments. If the stakes of collective future-making on a warming planet are to be grasped, it might be wise to pay attention to a place that purports to speak on behalf of the world.

CHAPTER ONE

STAGING DANISH MODERN: A PREHISTORY OF GREEN DESIGN

> "It is not about designing new objects for the world but about finding new ways of designing the world."
>
> —Danish Business Authority, 2018[1]

In Denmark today, the functionalist style of furniture, textiles, and housewares ascendant at midcentury known as Danish Modern has become virtually interchangeable with both 'Danish design' and 'good design' (Dickson 2008; Fallan 2012). As Finn put it in the introduction to this dissertation, Danes "simply do not tolerate bad design," as if the content of 'good' and 'bad' design were both self-evident and uncontested. In this chapter, I examine the value projects that animate these claims: What is *good design* in Denmark when it overflows the bourgeois domestic interior? To get at this question, I consider the close correlation between eugenic thought and social-democratic ideology, as well as the stamp of both on midcentury Danish design. I frame this genealogy as a prehistory of green design, arguing for a common ideological foundation with the Modernist project of social hygiene. Let me first clarify what I mean by *design*.

Anthropology's interest in design has until relatively recently been epiphenomenal. Lucy Suchman (2002; 2011; 2018) and Wendy Gunn (2008; 2020) in particular have pushed the discipline to attend to design *as an ethnographic object,* rather than merely to designed objects themselves. To this end, a burgeoning body of ethnographic work has enriched anthropology's

[1] "Design and Innovation;" Danish Business Authority
http://csrgov.dk/design

foundational concern for the politics of artifacts with an expanded set of critical tools to assess the moral and political implications of intentional intervention in the world. Keith Murphy for instance has theorized Swedish design as a *social cosmology*, "…divinity replaced by civility, the purposeful ordering and structuring of the social universe according not to the unknowable whims of a heavenly deity, but to the familiar needs of more worldly becomings" (2015:216). In her ethnography of machine gambling in Las Vegas, Natasha Dow Schüll (2014:46) examines the role of design in cultivating and sustaining addictive behavior, modulating via sensory atmospherics the affective intensities of what she calls the "machine zone." To the extent that design can be defined, what these accounts describe are locally embedded, fundamentally relational ways of worldmaking (Goodman 1978) enacted in diverse modes of sign interpretation (Gal & Irvine 2019: 92). It is this constructivist, open-ended approach to design-as-worldmaking that I take up in this chapter and throughout this dissertation.

The local social enactment of design that concerns me here starts with semantics. While the English term *design* is regularly used in Danish, primarily in public-facing discourse, in professional practice the Danish term is preferred: *formgivning*, which translates directly to English as "form-giving." I am particularly interested in the capaciousness of this concept of form, which in addition to things planned, made and tinkered with could potentially encompass all kinds of life forms, up to and including human bodies. In the next section, I consider what Marilyn Strathern calls "the persuasiveness of form" as it concerns functionalist aesthetics, social-democratic ideology, and the formal relationship of both with evolutionary thought.

Welfare Worldmaking

Until fairly recently, access to art historical scholarship on Danish design has been constrained by a language barrier to primary source material. Danish, a North Germanic language proper to a speech community of 6 million in 2019, is with few exceptions[2] rarely spoken or taught outside of Denmark. The existing historiography moreover tends to focus on the works and lives of eminent designers in an individualistic and, some scholars have suggested (Fallan et al. 2012), hagiographic (and I would add, androcentric) fashion. Over the past decade, several English-language studies centered on the cultural history and international circulation of Danish design have enriched the literature and expanded its readership (Dickson 2008; Mussari 2016; Taft 2014); yet the scope of this work is generally confined to the domains of furniture, architecture, and industrial design. As architectural historian Katrine Lotz has pointed out (2017), such studies have for the most part divorced the social engineering project of Danish design from the aesthetic one, overlooking the ways in which welfare politics have shaped Danish design worlds. As the chief client of Danish architects during the 20th Century, particularly during the postwar period, the Danish welfare state did more than simply commission public works; as I will show, the coterminous development of social welfare programs and functionalist aesthetics yielded more than a burgeoning middle class and fine furnishings with which to fill its living rooms. Like social-democratic reformers, Danish Modernists were ultimately concerned with designing the bodies that would inhabit the new

[2] Danish has minority language status in the Southern Schleswig province of Northern Germany, a contested border territory which belonged to Denmark before its annexation in the Second Schleswig War of 1864. As of 2018 roughly 50,000 Danish speakers reside in the area. Danish is also spoken by 12% of the population of Greenland, a formerly colonized territory.

world of welfare. In this section, I will examine the interplay between welfare as a political project and a design ideology closely aligned with eugenic thought.

The Danish 'welfare society' (*velvære samfundet*) came into being as an imagined community (Anderson 1983) with the ratification of the Kanslergade Agreement (*Kanslergadeforliget*), named for the Copenhagen street on which it was negotiated[3], on January 30, 1933. While the origins of the Danish welfare state may surely be traced further, from the first poverty relief programs for vulnerable populations in the late 19th Century to philanthropic supports for poor people during the Middle Ages (Jöncke 2011:36), the Kanslergade Agreement was an inflection point in a pivotal compromise between the liberal (*Venstre*) and social-democratic (*Socialdemokraterne*) centrist parties that set in motion the legislative reforms that installed the modern social welfare system in Denmark. In short, the agreement initiated a Keynesian response[4] to the worst financial crisis the nation had ever faced as it emerged embattled from the Great Depression.[5] After a draining (and apparently drunken) 18-hour secret meeting held at the residence of SD Prime Minister Thorvald Stauning, the Social Democrats acquiesced to Venstre's demands to devaluate the Danish krone and provide state subsidies to the agricultural sector in exchange for the establishment of four key social programs subsumed under a new Law on Public Welfare (1933):[6] cash assistance, national health insurance,[7]

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[3] The Kanslergade Agreement was negotiated in a secret meeting at the residence of then-Prime Minister Thorvald Stauning at Kanslergade 10 in Copehagen's Østerbro district.
[4] Such as the devaluation of the Danish krone and state subsidization of the agricultural sector, the introduction of unemployment insurance, accident insurance, cash assistance, and folkeforsikring.
[5] In 1933 unemployment reached 32% in Denmark (Hastrup 2011: 101).
[6] The Law on Public Welfare (1933) , which replaced the Poor Law of 1891, extended cash payments to various vulnerable groups and permitted extra financial assistance to those who had exhausted their legal benefits (Hastrup 2011:101).
[7] "Folkeforsikring" was a predecessor to the universal health insurance program introduced in 1973.

unemployment insurance, and accident insurance. The deal moreover established a precedent for cross-partisan collaboration on matters of social security, a model that would come to define Danish politics for the remainder of the 20th Century.

That the date of the Kanslergade Agreement coincides with the date of Hitler's appointment as Chancellor of Nazi Germany is no accident. As historian Bo Lidegård notes (2009:106), the historic compromise was as much a victory for the Social Democrats as a reformist party as it was an act of national self-preservation. Denmark's very survival demanded a popular front as autocratic sentiments intensified at the southern border as well as within the margins of homegrown ethnonationalisms (Jespersen 2011: 83-84). Such a coalition, it was decided, would cohere around a platform of an unprecedented expansion of collective protections and enrichments. In other words, social cohesion became thinkable as a national security imperative of the nascent Danish welfare state as a redistribution of risks and resources across the body politic (see Torbenfeldt Bengtsson et al. 2015).

The inflection of Danish Modern with social-democratic political ideals can in a limited sense be attributed to simple timing: the style came into being just as the Social Democrats reached the zenith of their political influence.[8] The nascent welfare state extended subsidies and institutional support for the education of architects and woodworkers, among other significant investments in public schooling. For a small country with scant natural resources, Danish design became a principal export.

Like other Modernist movements concerned with social reform, the ideological architects of Danish Modern sought to remake society by remaking the material world. To be sure, the

[8] From 1924 until 2001, the Social Democrats were the dominant political party in the Danish Parliament. Their popularity peaked in 1960s when they held 76 of 175 seats; from then on the number declined, and in 2015 they held only 47 seats.

functionalist design movement that emerged in Denmark during the mid-20th Century shares a family resemblance with a regional aesthetic provisionally generalizable as Scandinavian design, as well as close affinities with other modernist currents such as the German Bauhaus and European Japonism. Yet art historians tend to distinguish Danish Modern from contemporaneous functionalisms by its ovular forms, early embrace of so-called 'warm woods,' and resistance to machine aesthetics. Scholars have written of an 'organic' and specifically Scandinavian humanism that 'liberates' a generalized Nordic sensibility from the strict geometries and "cold industrialism" of Bauhaus aesthetics (Taft 2014; Taylor 1982). This humanism is said to manifest in the ergonomic curves and anthropometric proportions of Danish Modern furniture, which supposedly guaranteed universal comfort. As Mark Mussari writes:

> By emphasizing curvilinear, sinuous and organic shapes, the Danish modernists were able to establish a persistent visual relationship to the human body, one at least less dependent on shifting styles and design movements, if only because of the superimposed restrictions on form (2016: 48).

Danish designers approached furniture in many of the same ways that eugenicists approached bodies. Both considered themselves to be agents of social reform, committed to 'elevating' the tastes of the middle-class and by extension their intellect and moral character. Both were obsessed with anthropometrics, bent on realizing an 'ideal type' of human proportion as a means to achieving a healthy society. Like a eugenic body, for Danish Modernists a healthy moral interior originated from 'healthy' interior design defined by enveloping, curvilinear shapes informed by research into skeletal structure and ergonomics (Taft 2014: 71).

The biological orientation of Danish Modern is further embodied in the principle of minimalist styling as an expression of evolutionary sophistication. Consider artist Carl Jensen's

1943 cartoon **[Figure 1.2]** "An Architect Went Through the Room," which exemplifies Modernist contempt for the ornate Romanticism of the 19th Century. By caricaturing designers' progressive sense of innovation, Jensen satirizes both the supposedly universal comfort of functionalist furniture as well as the 'imposition' of Modernist tastes on middle-class Danes.

Several scholars have noted the irony of Danish Modern's elitism coexisting with its ostensibly democratic pretensions (Fallan et al. 2012; Mussari 2016). Hans Wegner, for example, a woodworker and designer known for his chairs, sought to transform the chair from a "throne" to an everyday object, as art historian Christian Holmsted Olesen (2014) puts it. Particularly for designers trained as cabinetmakers, like Wegner, applying craftwork techniques to wooden designs allowed them to achieve curvilinear forms without using industrial materials, such as steel. In contrast to the welded Modernism of Bauhaus designs, such as Mies van der Rohe's Barcelona Chair (which was originally designed for Spanish royalty), Wegner endeavored to craft chairs that would allow the sitter—any kind of body, he suggested—to take various positions, including lounging, which he evidently viewed as important (ibid 2016:56).

Wegner's design philosophy partakes of a longstanding and pervasive discourse about a supposed egalitarian bent of Danish Modern, which in this framing 'de-classes' objects with a task-oriented practicality (ibid 2016:xxx). The minimal lines and spare forms of say, Wegner's iconic Round Chair (1949) **[Figure 1.3]**, were characterized as "democratic" in their rejection of ornament, which purportedly leveled class difference (Aynsley 2009:7). As Maggie Taft has demonstrated (2014), the moralizing register of this discourse is expressed in stylistic stereotypes, such as the "fundamental decency" of woodworking techniques and the "honesty" and purity of natural materials, such as wood and cane. Period advertising echoed this emphasis,

characterizing Danish furniture as, for instance, “Modern with a beautiful harmony between clean line and lovely wood” (T. Eaton Co., Advertisement, 1951).

From 1927-1966, the annual furniture exhibitions[9] of the Copenhagen Cabinetmakers’ Guild marked a partnership between Danish cabinetmakers and furniture *arkitekts*[10] that would come to define a period concern for the craft of woodworking. In these displays, exhibited at what was once Frederiks Hospital and is now Design Museum Danmark, woodworkers staged prototypes of future Danish design icons as well as ideals of the modern good life centered on the family home. The staged interiors showcased woodworkers’ furniture alongside various pieces of decor and art objects, such as rugs, lamps, silver, glass and ceramics, as well as miscellaneous knickknacks. Woodworkers cultivated a lived-in aesthetic in their displays, often including an open book or half-smoked cigarette for an authentic touch. In a review of the 1945 exhibition, Danish architect Erik Herløw characterized the collective effect as one of transforming the Baroque building into “twenty or thirty little homes within the museum walls” (Taft 2014:74).

The Cabinetmakers’ Guild exhibitions held commercial as well as ideological aims. First and foremost, woodworkers were wary of mounting competition from Bauhaus designers, whose machine-driven forms and industrial materials stood in welded contrast to the Danish preference for natural elements and ovular shapes (a preference itself shaped by Denmark’s relatively late industrialization, see chapter two). The exhibitions offered a photogenic opportunity to brand

[9] The American press characterized the exhibitions as “laboratories of innovation” (Taft 2014:75).

[10] At midcentury, the term ‘designer’ was rarely used in Denmark. Furniture was known as *møbelkunst*, directly translated as ‘furniture art,’ and those who designed it were, depending on their training, known as *møbel arkitekts* (furniture architects). This title was reserved for those who had trained at *Det Kongelige Danske Kunstakademie Skoler for Arkitektur*.

Danish Modern as a 'homey' and 'humane' alternative to machine aesthetics, and market that brand both domestically and abroad via international art reviews. Danish architect Bent Salicath (n.d.) explains how the annual exhibitions, which began as effort to address an unemployment crisis in the woodworkers' trade, transformed the Danish furniture industry and became a "cultural achievement of vital importance…While the machines turned out upstart furniture in manorial style for small flats," he writes, "the furniture makers set themselves the task of making modern, functional furniture and created good, clean utility furniture, designed for the modern way of life" (cited in Taft 2014:59). Notice here the moralizing register of the class critique embedded in Salicath's appraisal. While the 'manorial' scale of 'upstart' Bauhaus designs is ill-suited to smaller flats, functionalist Danish pieces are 'good,' 'clean' and utilitarian, properly dimensioned for the modest modern home. As Salicath's critique suggests, the Cabinetmakers' exhibitions held a normative and hence ideological dimension, demonstrating to the emerging Danish middle-class, and particularly to young couples, how to 'properly' furnish and arrange one's home. In so doing, they laminated regimes of value such as homeiness (*hjemlighed*) and coziness (*hygge*—see chapter four) onto to Danish Modernists' handicraft sensibilities, carving out a regionally specific interpretation of functionalist aesthetics.

Crucially, state support for designers coincided with the postwar prosperity of the emergent Danish welfare society, which could now afford to jettison the passé Romanticism of the 19th Century and fill their homes with the 'good, clean and modern' minimalism of the 20th. Moreover, through the mass-market merchandising of Danish furniture cooperative FDB (*Fællesforeningen for Danmarks Brugsforeninger*), well-crafted replicas of iconic styles were made accessible to middle-class Danes. An entire generation of the new welfare society would thus grow up enveloped by Danish Modern, literally from cradle to grave. To this day, most

Danish welfare institutions and infrastructures such as hospitals, schools, libraries, airports, and care homes are total functionalist environments, steeped in what Keith Murphy (2015) calls the "subliminal semiosis" of social-democratic ideology.

Across Denmark at midcentury, the same functionalist chair could be found at a post office, in Parliament, and in the homes of both the postal worker and the Prime Minister. While today the Danish postal worker may have Wegner's chair—or more likely an FDB reproduction—sitting in her living room, it is likely a family heirloom. A key irony of the welfare state's inception was its inflationary effects on production costs for furniture and other designed objects. By the late 1960s, Danish Modern began to fall out of favor due in part to rising production costs and so declining quality, but also due to evolving tastes and a general sense among designers of having "perfected" functionalist ideal types (see Mussari 2016:45). While Danish design may have moved on stylistically, for example in a turn to psychedelia and synthetic materials in the late 1960s and 1970s, and to postmodernist maximalism in the early 2000s, the social-democratic ethos of Danish Modern—and its foundation in evolutionary thought—continues to inflect the visual and discursive registers of Danish design today.

Poul Henningsen (1894-1967), a prolific Danish architect and lighting designer active in the 1920s and '30s, once ridiculed Copenhagen's city planners as "a collection of Christmas gnomes"[11] (Hertel 2012:66), ostensibly for their fealty to historicist architectural styles he viewed as precious and antiquated, such as Neoclassicism. The irony of Henningsen's taunt is that subsequent generations of Danish architects and planners would be steeped in the aesthetics

[11] More specifically, this comment is an allusion to the Municipality's proposition to build a bridge connecting the island of Amager, the eastern most district of Copenhagen, with the city's south harbor, an idea Henningsen viewed as a ludicrous fantasy "that could only happen in the circus ring right before the clown falls on his ass."

of the very movement he was instrumental in founding, not least in state art academies but also in the living rooms of their childhood homes. Some members of the newest generation, 'starchitect' Bjarke Ingels in particular, have staked their careers on rejecting their predecessors' signature restraint, not without controversy.[12] Yet the ongoing influence of '*de tunge drenge*'—'the big boys,' as the idiom goes—and widely overlooked girls of Danish Modern on design worlds today is difficult to overstate. I turn now to consider these influences on green city worldmaking in particular.

What Would Jane Jacobs Do?

At a town hall debate about Copenhagen's recent residential and commercial development in April of 2018, Tina Saaby's tee-shirt spelled out this rhetorical question in white-on-black lettering. Saaby, then-Chief Architect for Copenhagen Municipality, was joined by a small panel of local politicians and architects for a late-afternoon feature[13] of the annual Copenhagen Architecture Festival,[14] two weeks of talks, films, guided tours and exhibitions centered on a specific aspect of the built environment. This year, the festival would "unfold the theme of home, housing and belonging."

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[12] Particularly with respect to the luxury housing development of Ørestad and the public park of Superkilen, see chapters two and three, respectively.

[13] The program for the event read (my translation): "Over the last 20 years, Copenhagen has developed at a dramatic pace. A large number of new areas have emerged or have become densely populated with apartments, and the harborfront no longer has dilapidated industrial areas, but rather has become a green and recreational space where Copenhageners live and move in style. Danish architecture has once again become a recognized brand abroad and has reinvented itself in a globalized, intercultural world with architecture firms such as BIG, 3XN and COBE." I analyze the staging of this progress narrative of crisis, resiliency and ingenuity in chapters two and five.

[14] The festival was founded in 2014 by Josephine Michau and architects Mads Farsø and Peter Møller Rasmussen and also runs concurrently in the Danish cities of Aarhus, Aalborg, and Odense.

Saaby's sartorial reference to one of Modernist urban planning's staunchest critics set up what would become the organizing topic of the panel discussion: the late industrial transformation of Copenhagen and its inflationary effects on the housing market (see chapter two). As evidenced in the Q&A following the panelists' discussion, attendees of this particular event were mostly locals with a personal stake in the Municipality's breakneck pace of new luxury housing construction. Architect Natalie Mossin's characterization of the city as 'developer-friendly' struck a nerve. "I live in Vesterbro," a fortysomething man spouted into the mike. "While Copenhagen may be 'developer-friendly,' it is not neighbor-friendly. It is hard to see how an ordinary citizen can find a place to live in Vesterbro."

"I totally agree," Mossin sympathized. "The city has created a luxury problem where housing is concerned. It is super difficult to get a rental property; social housing is often the only solution."

"That sounds very social-democratic," snarked Niko Grünfeld, the Mayor of Culture and Leisure. As a member of Alternativet, a quasi-libertarian green party founded in 2013, Grünfeld stayed on-message. "There are many different ways to regulate housing shortages," he added ominously.

As the conversation shifted to less partisan matters, Saaby suggested that Copenhagen's new residential and commercial development had become, in a word, boring. "Back in the '80s, we wanted nuclear families to move back to Copenhagen. So we made the city into a massive urban living room. But we have forgotten *the edge*."

Urban Living Room

The homey displays of the Cabinetmaker's Guild exhibitions may have closed in 1967, but the visual and discursive trope of the cozy, healthy and democratic domestic interior remains a powerful signifier in Danish design today, and particularly its style of green urbanism. Consider "Our Urban Living Room," the title of a retrospective exhibit focused on COBE Architects, a primary contractor for Copenhagen Municipality, which debuted at the Danish Architecture Centre from October 2016—January 2017. Since its founding in 2006, COBE has designed a number of high-profile projects across Copenhagen, including the redeveloped Nørreport (train) Station, as well as several residential and commercial structures in the new Nordhavn district, billed as a "sustainable neighborhood of tomorrow" (see chapter two). They are also behind the bicycle track design that Finn fretted over in the introduction to this dissertation. Across a series of photo and audio works framed in a wooden installation, the exhibit narrates the late industrial transformation of the Danish capital from a shabby, shrinking city hemorrhaging residents and revenue (see chapter two) to, in COBE founder Dan Stubbegård's words, an extended living room: "a new kind of city where public and private spaces are intertwined in exciting new ways" (Arvinius + Orfeus 2016). In one of the exhibit's introductory panels, the text reads:

> We believe in treating every single public space—every building, every street, every corner of the city—as an extension of our homes by turning our cities into urban living rooms for everyone.
>
> We look to successful interventions such as the Copenhagen bicycle lanes—an urban democratic construction that shapes our everyday lives and thus becomes part of our lifestyle and identity, as well as the backbone of our healthy and capacious city.

Anthropologists are not prone to charitable appraisals of museum boilerplate such as this. I include it here however as an example of how the public/private distinction has become institutionalized as a central formal metaphor in Danish urban design today (cf. Gal 2002). Helena, a head architect at COBE, explained the 'urban living room' design concept to me in this way:

> So it's a little bit like your own home, where you have cozy corners and the entrance hallway where you just want people to get in and out. So I think it's a little bit the same in the city—you have different zones, small local spaces, but also more prominent, representative spaces.
>
> And of course it's also important that you somehow furbish it right so that you have a clear, semi-private zone where you can also be outside—that's also very important that you have these zones where you can be private and feel safe and be out there. So how can we make it work for different kinds of needs, and throughout the day, and throughout the year and so on.
>
> Especially if you're living in a tiny, small flat, you can really benefit from having proper quality public space. You also often see—in places where people don't have a lot of space inside or indoor, they go outside and inhabit the public space. So it's the quality of the public space, but also that you can meet other people—I mean you don't have to talk to them, but just *be* with other people out there; it also has a democratic function.

In an important sense, the Copenhagen-as-urban living room trope is a canny sleight of hand—a diversion from building actual living rooms, you might say. More specifically, as a city branding strategy that promotes large-scale investment in high profile green infrastructures, such as bicycle transit and climate-adaptation, without matching those investments in low-income and social housing, the tropic circulation of the urban living room deflects attention and resources from addressing the city's affordable housing shortage, which has grown particularly acute over the past two decades. In other words, the extension of the private into the public is not merely a spatial and discursive move; it is a metaphoric materialization of the economic conditions of possibility for a new mode of managing and financing the welfare city. I want to argue here that

the externalization of the bourgeois domestic interior can be grasped as a visual language of welfare retrenchment, one that ironically thematizes a social-democratic register of Modernist social hygiene. In the following chapter, I'll map the historical and economic conditions of possibility for these developments. What I want to stress here is that while the urban living room trope has several registers—as brand, sign relation, and design ideology—its visual and discursive indexicalities stem from a common foundation in social-democratic ideology and evolutionary thought.

INTERLUDE

A SECRET GARDEN

On the stairway of my building, a six-story block of flats[1] in Nørrebro, I encounter Jørgen, a longtime resident in his mid-70s who walks with a cane. The elevator has been out of service for six days, with no repair date in sight. I offer to help Jørgen carry his heavy shopping bag (full of wine bottles) up to his flat on the 5th floor. As we make our way up the stairs, he shares that he is a cancer survivor and gets winded easily, so we take breaks between flights. The sound of birds chirping mark our arrival at Jørgen's floor. He offers to show me his 'secret garden' (*hemmelige have*), part of which is visible from a window at the top of the staircase.

We enter his flat, which appears untouched from its original 1970s finishes: teak kitchen cabinets, Danish Modern seating and lighting, and *hyggelige* touches everywhere: framed photos, framed artwork, a pair of parakeets in a birdcage, knickknacks of all kinds. I tell Jørgen that I have serious apartment envy, as my own sublet has been renovated in all-white Ikea laminate. He gasps in mock horror.

We step onto the balcony and into Jørgen's immaculate garden, a joint effort cultivated over many years with his neighbor, Sofie. Jørgen studiously describes each plant and bird species that populate the hyperlocal ecosystem, which stretches the full length of the balcony. I am inspired to give my own ailing tomato plant another try, I say, and Jørgen seems pleased.

[1] The building was constructed in 1975 as single-room social housing and privatized in the 1990s. As a result, occupants of building are a mix of longtime residents like Jørgen, college students whose parents purchased individual units at market rate, and quasi-professional folk like me.

Jørgen asks if I have the same view of the new *højehuse* (high-rise), a student dorm across the way, that appears in skewed perspective as a massive chimney atop the building opposite ours **[Figure 1.4]**. I do, I say, and ask him what he thinks about it. He thinks it's quite fun, but regrets that the structure lacks balconies and therefore the opportunity for residents to have their own secret gardens. He recognizes the need to build more housing in the area, however, particularly for students. Jørgen also regrets that just a handful of residents in our own building have balcony gardens. They used to, back in the day, he says, but not so much anymore.

CHAPTER TWO

ATLAS OF THE COPENHAGENS

"You have this city that is 1500 years old. You take the history of the last 50 years, and you let that define the future of the city."

> —Klaus Bondam, Director of the Danish Cyclists Federation and former Mayor of the Technical and Environmental Administration (2005-2010)

Historians of the Danish built environment have noted the difficulty of describing a city whose fragments form an atlas of many Copenhagens[1] (Simpson et al. 2018). In this chapter I will not attempt to synthesize this range of territorial and conceptual Copenhagens but will rather zoom in on one in particular: the postwar welfare city and its subsequent iterations. As I observed in my research, unreliably narrated framings of these fragments piece together a

[1] In its earliest atlas, Medieval Copenhagen is known simply as *havn* (harbor), a key ferrying point along the Øresund Straight between the Danish island of Sjælland and the southern Swedish province of Skåne. Founded in 1167 by Archbishop Absalon during the reign of King Valdemar the Great, Havn began as a hamlet on the islet of Slotsholmen. In order to fend off Wendian pirates to the south, Absalon built a modest fortress on the island around which a bustling fishing village coalesced. In decades that followed, he fortified the village with an extensive system of ramparts extending inland in a half-ring around the harbor, circumscribing a residential and commercial pocket that would continue to expand into the 17th Century.

By the end of the Medieval period, Havn—now known as *København* (Merchant's Harbor)—had emerged as the seat of Danish government and economic life, as well as the center of Baltic trade in Northern Europe. During the early 17th Century the city was substantially enlarged during the reign of King Christian IV (1588-1648), who is regarded as Copenhagen's second founder. In 1618, Christian IV effectively erected a new city out of the sea by fortifying marshland between Copenhagen and the small island of Amager with earthen embankments and bastions, linking his eponymous new town—"Christianshavn"—with Absalon's settlement by what is now known as the Knippelsbro Bridge. Christian IV's expansions, which included a 200-hectare fortified area north of the harborfront dubbed "New Copenhagen" (Ny København), an area also known as *Sankt Annæ By* [Saint Ann's Town]) increased the area of the Medieval core by approximately 40% and established a concentric framework for further development.

selective story of urban 'optimization,' one that stages the green city as an object of eugenic design (cf. Cogdell 2004), up to and including inhabitants as perfectible prototypes. Let me begin with some orienting coordinates.

Copenhagen may be almost a millennium old, although it doesn't show its age. The candy-colored townhouses and Baroque castles for which the city is famed sit atop the fragments of a phantom town; remnants of the Viking fishing village and Medieval fortress into which it evolved have all but vanished from the extant built environment. Two ruinous fires in 1728 and 1795[1] destroyed 28%[2] and 25% of the city respectively, as well as displaced some 15,000 and 6,000 inhabitants from their homes. In 1807, just over a decade after the second fire, the British Royal Navy bombarded the Danish capital in the Second Battle of Copenhagen[3] during the Napoleonic Wars, razing roughly 1000 inner city buildings in its attempt to demolish the Dano-Norwegian fleet docked at Holmen. The collective damage of these three calamities erased almost all traces of Medieval and Renaissance Copenhagen. For this reason, the built environment today is a palimpsest of architectural styles marked by a series of royal decrees, deadly epidemics, dynamic migration patterns, and evolving logics of town planning from

[1] The fire of 1795 had lasting effects both on Copenhagen's physical and social landscapes. Architecturally, the fire precipitated a new master plan which dictated among other preventive measures that new construction be made of mason rather than timber-framed; buildings should be placed diagonally at intersections; and winding cobblestoned streets should be straightened to facilitate easy passage of emergency response vehicles. The rebuilding effort also introduced Classicist architecture into the city center. In policy terms, the municipal response to the fire initiated new financial protections for homeowners through the foundation in 1797 of Denmark's first credit union: Kreditkassen for Husejerne i Kjøbenhavn.

[2] Proportionally, the fire of 1728 destroyed 47% of the Medieval quarter.

[3] The British bombardment originated the term 'Copenhagenize,' which refers to the naval practice of expropriating the fleet of a defeated enemy. In the early 2010s, the term evolved as a branding strategy to position the 'Copenhagen model' of green urbanism as indefinitely scalable and globally exportable, particularly with respect to bicycle infrastructure, a phenomenon I detail in chapter four.

Medieval fortification to green urbanism. Yet one paradigm in particular—the Finger Plan of 1947— has been proven to be indelible, and warrants a closer look.

Concentric City

Because the Second Battle of Copenhagen exposed the vulnerability of the city's eroded fortifications, action was ultimately taken in 1856-58 to demolish most of them, with those at Christianshavn and Kastellet remaining intact. Over the following five decades, the city's rural surrounds developed rapidly with little formal planning. Between 1852 and 1903, Copenhagen City Council—the earliest expression of the municipal planning apparatus—gradually acquired several neighboring villages spanning x square kilometers in order to accommodate an influx of industrial workers from the rural provinces[4] seeking employment in iron works and textile manufacturing. These acquisitions marked the advent of the *brokvartere:* residential districts named for their extension beyond the original bridges that cross Copenhagen's five fortification moats. Built between 1879-1920, the four brokvartere[5] expand westward in a half-circle around the inner city. As architectural historians Vejre et al. observe (2007), the brokvartere reproduced patterns of inequality extant within the walled city, concentrating wealthy and middle-income households in the north and north-west (Østerbro) and low-income households in the west, south, and south-east (Nørrebro, Vesterbro, and Amagerbro). These emerging working and middle class enclaves were served by a tramline[6] from 1863 to 1972, when the network was dismantled and

[5] The brokvartere include Østerbro, Nørrebro, Vesterbro, and Amagerbro.
[6] Copenhagen's tram network was in operation from 1863-1972. It was powered initially by horses, then by steam in the 1870s and electrified in 1897.

supplanted by an extended bus network under the Outline Development Plan of 1954 (see Chapter 2).

By 1930, Copenhagen's metropolitan population growth had peaked at one million inhabitants as the brokvartere continued to urbanize in a densely layered, concentric pattern. Attendant public health hazards of housing shortage and rudimentary sewerage[7] underscored the need for a systematic rather than an ad hoc approach to urban planning. In an earlier review of the Danish Engineers Association's traffic plan for Greater Copenhagen in 1923, Architekten Magazine recommended putting "meat on the skeleton" on what in their view was a lean vision for regional development, not least of which concerning North Sjælland's 'wild nature' (Jensen 1990). To this end, the Danish Urban Planning Laboratory (*Dansk Byplanlaboratorium*)[8]—a then-private consortium of Copenhagen-based architects and urban planners formed in 1921—published in 1936 a comprehensive landscape analysis and regional master plan[9] for preserving a coherent network of green space surrounding the city proper. Dubbed *Den Grønne Betænkning* (The Green Paradigm), the proposal held in tension Modernist ideals of conservation and expansion that entrenched a trajectory of differentially patterned development for decades to come. In short, the Green Paradigm assigned environmental protections primarily to the variegated landscapes situated north and northwest of the city center, which, as Vejre et al. (2007) note, planners valorized as more "attractive" than the flatter, sparser tracts of land located

[7] Unsanitary conditions in overpopulated housing and rudimentary sewerage contributed to the Copenhagen cholera outbreak of 1853, which killed 4800 inhabitants.
[8] The Dansk Byplanlaboratorium is financed through a combination of state, regional, and municipal grants as well as private donations. The organization currently exists in an advisory capacity to the Technical and Environmental Administration.
[9] *The Green Areas of Copenhagen: Proposal for a System of Areas for Outdoor Recreation* was conceived by planner Olaf Forchhammer in 1936 on behalf of the Danish Urban Planning Laboratory.

to the west and south-west. In so doing it outlined a blueprint for social stratification around unequally protected landscapes, seeding conditions of possibility for so-called 'nature suburbs' to take root in municipalities north of Copenhagen and less lush districts to the west and south-west; extending at a regional-scale inequalities spatially entrenched in the concentric city **[Figure 2.1]**. The proposal further established cycle tracks, footpaths and parkways (wide avenues flanked by green space), as well as earmarked sites for future commuter rail stations[10] to facilitate urbanites' excursions to northern Sjælland's forests, lakes and seaside resorts.

While conservation in 19th Century Copenhagen was guided by a miasmatic belief in prophylactic ventilation of the city, The Green Paradigm of 1936 embodied the ideology of social hygiene ascendant in Western Europe and North America during the early 20th Century (Møller 2002). Instead of infection, here green space—characterized as the "city's lungs"—would stave off social ills such as alienation and instead cultivate civic solidarity, "spreading peace" throughout the metropolitan area and by extension among the body politic. As WJT Mitchell (1994) among others have noted, vitalist notions of "restoring" an alienated, undifferentiated "human spirit" to "harmony" with its environment have a long lineage in North Atlantic epistemes (Clark 1949; Schiller 1794; Veblen 1899). The aestheticization of "leisure landscapes"—conceived to remedy an etiology of urban anomie—was both a core Modernist ideal and a central concern of Danish urban planning at midcentury (Hauxner 2003). Following the Second World War, vitalist currents quickening in Denmark profoundly shaped the material and ideological contours of the emergent welfare city (Braae 2017:46; 2020), which in Copenhagen assumed a distinctly anthropomorphic expression.

[10] The first of these "S-train" urban/suburban commuter lines (s-toget) opened in 1934. There are seven lines and 85 stations operative within Greater Copenhagen in 2020.

Anthropometric City

During the postwar period, the Scandinavian welfare states coalesced in parallel with rapid urbanization across the region (Juhani Lehto 2000:117), concentrating social welfare goods and institutions in urban cores. For this reason it is possible to speak of twin projects of spatial and societal welfare worldmaking, a conjunction architect Jesper Pagh has aptly phrased as an "edification towards a common good" (Lotz et al. 2018). Government-subsidized social housing associations played an increasingly prominent role in the postwar years, with a preference for large footprint, functionalist architecture. Large-scale investments in critical infrastructures and new public institutions monumentalized social-democratic ideals such as freedom, equality, and solidarity, laminating functionalist aesthetics to political ideology in the urban built environment (cf. Murphy 2015). From its inception in 1933, the modern Danish welfare state[11] was the chief of Danish architects, often enlisting high-profile figures in Danish functionalism to design public works such as social housing, hospitals, schools and universities; libraries, sports and leisure facilities; care centers for children and seniors; and road and railways. While not quite a state style, Danish Modern can be grasped as a *social-democratic surround* (cf. Turner 2015) that literally formed social welfare infrastructure across Denmark at midcentury.

In Copenhagen, the Regional Planning Committee determined that a fundamental restructuring of the urban form was necessary in order to distribute access to new welfare institutions across the expanding metropolitan population. The spatial constraints of the concentric paradigm, which facilitated 'layer upon layer' development flowing outward from the city center, were judged ill-equipped to support an anticipated trajectory of sustained regional

[11] The legislative foundation of the modern Danish welfare state was established on January 30, 1933 with the Kanslergade Agreement, which expanded labor rights, devalued the Danish krone, and extended state subsidies for farm workers.

population growth. A viable future city predicated on further growth, planners projected, would require rendering a Modernist blueprint from a Medieval palimpsest. To this end, the Regional Planning Committee published in 1947[12] *The Finger Plan: A Proposal for the Regional Development of Greater Copenhagen*. Informed by the garden city paradigm[13] conceived by English urban planner Ebenezer Howard in 1898 and expanded during the postwar period with the New Towns movement, the master plan outlines a vision for the radial suburban development of the emergent region now called Greater Copenhagen. With its clear Modernist division between urban and rural domains, the Finger Plan was archetypical of postwar Scandinavian welfare urbanism; itself a product of Fordist-Keynesian 'predict-and-provide' planning (Simpson 2018:165). The plan derives its name from its humanoid silhouette **[Figure 2.2]** in which a colossal right hand overlays the region such that wrist joint lies flush with the Øresund coastline, palm encompasses city center and bridge districts, and fingers expand radially along commuter rail lines (*S-toget*) partitioned by wedges of green space earmarked in the 1936 Green Paradigm. In this way, the suburbs of Greater Copenhagen would calcify like 'knuckles' around commuter rail stations dispersed along transit 'fingers.'[14]

[12] While the privately-authored proposal was never formally legislated due to the absence of a regional planning authority at its inception (see Andersen 1991; Gaardmand 1993), it functioned as a guideline until the 1970s. Up until then, Danish urban planning favored localized municipal administrations over centralized regional institutions. The first regional planning body in Sjælland, known as Greater Copenhagen Council, formed in 1974 and was ultimately supplanted by the administration of the Capital Region of Denmark in 2007 during the Danish Municipal Reform.

[13] The garden city movement proposed the construction of self-contained communities surrounded by 'greenbelts'—a zoning designation used in land use planning to allocate sections of largely undeveloped land surrounding urban areas. As an early exponent of transit-oriented development (TOD), the Finger Plan modified the conventional garden city paradigm with a radial rather than concentric blueprint.

[14] The Finger Plan radically accelerated suburban development in the Capital Region, underway since 1920, facilitating the development of the outlying areas of Kongens Enghave, Valby, Vigerslev, Vanløse, Brønshøj, Utterslev, Sundby through 1960.

In a 1990 memoir by Sven Allan Jensen, an architect at the Regional Planning Office and co-author of the Finger Plan, Jensen notes that the human handprint from which the blueprint was rendered is in fact "not Danish" (*udansk*) because it belonged to Viola Rasmussen, a Polish woman married to head architect Dalgas Rasmussen (1990:14). While Jensen presents this detail as an amusing aside, I want to flag it here as a coded expression of eugenic thought in Danish welfare urbanism, insofar as it indexes a physiognomic notion of ethnic purity as central to the value project of Danishness. One could further argue that the anthropometric rendering caricatures an instrumental view of the natural world as a standing reserve worthy of protection only in terms of its human use value.

In addition to facilitating radial suburban development, the Finger Plan aimed to raise the standard of living for Greater Copenhagen via ready access to high-quality housing stock, public green space, and mass transit.[15] Yet access to these amenities was unevenly distributed (Jørgensen 2004). Notwithstanding the collective protections and enrichments inaugurated with the Danish welfare state in 1933, symbolic and material inequalities among wage laborers and the emerging middle class were entrenched in the new urban form (see Jöhncke 2011). Insofar as it effectively ghettoized radial subdivisions along class lines by concentrating wealth in the north (within the pinky finger) and distributing the quality of new housing stock unevenly across the middle digits moving south (toward the thumb), the Finger Plan inscribed socioeconomic and later racialized divisions into the regional landscape, delineating the environmental protections

[15] The plan pursued these aims through three key initiatives: 1) Expanding construction of multi-family dwellings to relieve geometric urban population growth in the city center; 2) Building new social housing proximate to public parks, allotment gardens, woodland areas, or nature preserves; 3) Establishing an efficient and coherent multimodal regional transport network that would support further radial growth.

and ‘leisure landscapes’ outlined in the 1936 Green Paradigm as well as their corresponding social inequalities.

While basic fidelity to the *leitbild* of the Finger Plan has largely shielded the Capital Region’s parklands from further development, it has also been instrumental in the Danish expression of the postwar Great Acceleration in consumption and population growth across the Global North (McNeill and Engelke 2016), accelerating in particular private car ownership that accompanied regional suburbanization from the mid-1950s to the mid-1970s. Copenhagen’s population doubled during these decades, attended by a housing boom[16] ushered in with an abundance of postwar wealth, energy,[17] and social-democratic political power. The new housing construction reflected the CIAM (*Congrès internationaux d'architecture moderne)* Modernist principles of functional segregation and industrial design, as well as monumentalized a strong relation between architect and client: the state. The postwar period also announced the arrival of Modernist urban planning in Denmark, including its enthusiasm for car culture. “In the late ‘60s, we tried to make Copenhagen look like LA,” explained Søren Elle, a civil engineer who started at the Regional Planning Office in 1972. A 1973 study found that between 1956-1967, motorized traffic in the city increased by 70% almost entirely at the expense of cyclists, whose modal share was halved as vast stretches of existing cycle tracks were dismantled to accommodate swelling car traffic (Stadsingeniørens Direktorat 1973:32). By 1972 the city tramline had been fully phased out and supplanted by the regional bus network, which in effect further ensnared rather than streamlined inner city traffic.

[16] Approximately 240,000 new dwellings were constructed from 1947.
[17] Fuel rationing throughout Denmark imposed by the Nazi regime ended with WWII.

Despite planners' California dreams of Modernist autopia, two major proposals for high-rise development and a 12-lane motorway set to slice across the city's beloved lakes ultimately failed. While the Finger Plan's original long-term vision included both proposals, public outcry as well as a series of fiscal contractions following the global oil shocks of 1973-74 and '79 took them off the table for good. As prominent evangelist of Danish green urbanism Jan Gehl has argued (1987; 2004; 2010), because Modernism was both belated and interrupted in Denmark—due respectively to the Nazi occupation during WWII and the protracted recession of the 1970s—its 'damage' has proven easier to 'undo' with the relatively inexpensive spatial fixes of transit-oriented green design. Throughout my fieldwork, "Undoing the damage of Modernism" constituted the narrative arc of a story about Copenhagen's late industrial decline and 21st Century 'regeneration' retold to me nearly verbatim by various players in the Technical and Environmental Administration. In the remainder of the chapter, I will reproduce this progress narrative and analyze its teleological project, which I will argue can be understood as an expression of eugenic design thinking.

Late Industrial City

In the mid-to-late 1980s, Copenhagen experienced 17.5% unemployment and an annual deficit of USD 750 million (Brookings 2017), reaching a nadir in 1993 as the city government narrowly skirted bankruptcy. While local expressions of world-historical phenomena partially explain Copenhagen's predicament (e.g. deindustrialization,[18] the oil shocks of 1973-74 and '79),

[18] While the manufacturing sector in the Copenhagen Metropolitan Area has declined precipitously since World War 2, the regional service sector has steadily expanded, generating growth in both public and private service sectors (Winther 2001). Beginning in the late 1960s, the urban core experienced a deindustrialization process and marked decline in manufacturing jobs in textiles and apparel, wood and furniture and to some extent in food processing. Many of

much of its economic hardship during this period stemmed from the large-scale suburbanization spatialized in the Finger Plan. To begin with, as middle-class families moved further outward along the suburban 'digits,' the city's tax base dried up. This outward migration corresponded with greater public subsidies for motorways to support growing private car ownership, both of which enabled longer commutes. As a result, by the early 1990s the metropolitan population had become, as consistently narrated to me, "overrepresented by pensioners and students" attending public universities, neither of whom significantly contributed to the city's tax revenue.

Facing the loss of its tax base and manufacturing sector (primarily in wood and furniture, textiles and apparel, and to some extent food processing) and concomitantly contracting local economy, the municipal government pursued a series of radical policies to entice suburban exiles to return to the city and spur economic growth. Key among these was a so-called 'housing regeneration' project that shored up and combined one-bedroom apartments into larger units in deteriorating, historic housing stock in bridge districts (primarily Vesterbro and Nørrebro). Many of these properties were city-owned social housing which were privatized and sold at market rate. The strategy paid off: middle income families bought up the combined units in several

these firms relocated to Jylland. Breum (1991) points out that the CMA suffered overall job loss due to firm closures but also experienced dynamic regional development as new tech firms emerged in the late 1980s. Moreover while the inner city has experienced major decline and recession in the manufacturing sector, surrounding municipalities have in some cases experienced growth in manufacturing employment in the 1980s and 1990s; a pattern observed in other European and North American cities. As Winther (2001) notes, this combination of deindustrialization, market restructuring (firm downsizing and closure), relocation of manufacturing jobs, and growth of the service sector has been observed in most major metropolitan areas in Europe (Keeble et al. 1983).

migratory waves beginning in the late 1990s and peaking in the mid 2010s,[19] contributing to both municipal solvency as well as an acute housing shortage in the city proper.[20]

Copenhagen's turn to privatization was broadly infrastructural. In 1990, an unholy alliance formed between Conservative Prime Minister Poul Schlüter, Social Democratic party leader Svend Auken, and the Social Democratic Lord Mayor of Copenhagen Jens Kramer Mikkelsen. While political coalitions are not uncommon in Denmark, whose Parliament maintains a longstanding tradition of cross-partisan compromise, collaboration among local and national governments to address municipal-scale problems was something new. Fundamentally, Schlüter, Auken, and Mikkelsen sought to transform Copenhagen from a depopulated, late industrial city to one that would attract a new kind of resident: the well-to-do service sector professional seeking luxury housing and leisure amenities. In order to finance new investments in infrastructure without increasing local taxes (a nonstarter), the alliance focused on developing public land within the industrial harborfront vacated with the flight of industry. To this end they established a series of publicly owned, privately run corporations dedicated to 'regenerating' disused property primarily in the urban core, channeling the proceeds of land disposition, revaluation, and private redevelopment to finance the construction of a wide range of public infrastructure, including road and bridges, recreational facilities, cycle tracks, and mass transit such as the Metro opened in 2002 (Brookings 2017). The new corporate entities tasked with managing these projects loosely correspond to three phases of development, which I will very briefly sketch below.

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[19] In 2018 for instance the metro area added roughly 1400 new residents every month (Danmarks Statistik).

[20] Low-income and single-member households have increasingly been priced out of the Copenhagen metropolitan area since the early 2010s.

Green City

The first venture trained its sights on 3.1 square kilometers of state-owned, protected heathland on the island of Amager, formerly used by the Danish military. Strategically sited for its proximity to both Kastrup Airport and the Øresund Bridge to Malmö, the area would be rezoned to accommodate the planned community of Ørestad, a futuristic city-within-a-city to be developed over a period of 20-30 years. To that end the national government created the Ørestad Development Corporation in 1992, a joint venture co-owned by Copenhagen Municipality (55%) and the Danish Ministry of Finance (45%). Construction would be financed by selling off publicly-owned land to developers and reinvesting proceeds in a new rapid transit system. In a circular logic, the Municipality argued that Ørestad required the construction of a metro, and that a metro was necessary to attract investment in the project.

Ørestad was envisioned as a 'cross-roads of Scandinavia' that would form a commercial and residential hub between the Danish Capital Region and southern Sweden. While that grand vision never quite materialized, as construction intermittently stalled both before and after the 2008-9 global financial crisis, a scaled-back version of Ørestad is today home to 21,0000 residents[21] of mostly high-rise, luxury housing, as well as a series of superlatives: Denmark's largest shopping mall, largest apartment complex, largest hotel, as well as the largest convention center in Scandinavia;[22] that 'starchitect' Bjarke Ingels Group—BIG—is responsible for several of these structures is perhaps no accident.

Next on the docket for redevelopment was the industrial harborfront. By 1990 a total of 95 overflow channels piped wastewater directly into Copenhagen's harbor and adjacent

[21] According to tourism agency "Wonderful Copenhagen," more than half of Ørestad's current residents are between the ages of 20-39.
[22] Bella Center hosted in 2009 Cop15—the UN Climate Summit.

coastlines. Contamination from oil spills, industrial waste, and algae also contributed to the port's toxicity. Seeking to make the area safe for commercial and residential redevelopment, city and state governments teamed up to form Port of Copenhagen Ltd., an entity tasked to direct both the remediation effort as well as new construction. Modernizing[23] the city's sewerage system would require roughly 3 billion DKK (440 million USD), which the city raised by selling vacant buildings and unused land in and around the port to private developers. Roughly 25% of the harbor traffic in the ports of both Copenhagen and Malmö was estimated to dry up with the opening of the Øresund Bridge in 2000, further freeing up city-owned land for disposition. Today the former transport junction is equipped with three recreational harbor baths, the first of which was designed by BIG and opened in 2002. That year is frequently plotted as an origin point for the emergence of a 'green' and 'livable' Copenhagen in what I have come to understand as a narrativization of eugenic design thinking. Photographs of mostly white, trim and youngish bathers jumping into the now pristine water are ubiquitous in the narrative's visual language, appearing throughout the Technical and Environmental Administration's promotional and public-facing materials **[Figure 2.3]**.

In 2007, the two corporations created in the intragovernmental alliance—Ørestad Development Corporation and Port of Copenhagen Ltd.—were consolidated under one publicly-owned,[24] privately-operated entity: the City & Port Development Corporation (Udviklingsselskabet By & Havn). Using the same financial model as its two predecessors, By & Havn has since its creation managed about half of all redevelopment projects in the city. Eleven

[23] The modernization effort, which began in 1992, rerouted wastewater, built overflow barriers and underground water storage vessels.
[24] Initially 55% by Copenhagen Municipality and 45% by the State of Denmark; as of 2014 ownership is 95% municipal and 5% state

of its sites are landfills annexed from the sea. In addition to Ørestad, these projects include among others Papirøen (Paper Island), a former printing warehouse on Christiansholm rezoned for luxury housing designed by Cobe Architects in 2018 (following a five-year 'trial period' as a street food market). By far By & Havn's largest project—and revenue stream—is the redevelopment of North Harbor (Nordhavn), an artificial islet constructed off of North Copenhagen in the late 19th Century. Used until xxxx for industrial manufacturing and shipping, Nordhavn today is nearly halfway through a planned 40-year commercial and residential redevelopment as a new city district. Its two square kilometers—a new zip code—will ultimately house 40,000 Copenhageners and employ some 40,0000 more in repurposed warehouses and new luxury highrises, as well as a new UN City. By & Havn has branded Nordhavn as a 'sustainable city of tomorrow,' boasting platinum-certification from the German Sustainable Building Council (DGNB) as well as amenities such as harbor baths and pocket parks, a bicycle green loop 'expressway,' and five new Metro stations.

Like its predecessors, By & Havn was established to reinvest redevelopment proceeds in public amenities and transit infrastructure; specifically in the expansion of the City Circle Metro line. These investments in turn increase the value of the city's remaining land and assets, which in turn enables further investment and expansion. In a 2017 analysis, Bruce Katz and economist Luise Noring of the Brookings Institute describe Copenhagen's public-private development structure as a "virtuous cycle" and "a model for regenerating cities," responsible for a dramatic transformation of an "ailing manufacturing city"—teeming with both sewage and 'unproductive' citizens—to one of the world's wealthiest (2017:4). The report further recommends application of the model to economically distressed and 'rebound' cities in the U.S. Rust Belt, as well as to 'hot market' cities like Boston and San Francisco well-positioned to "ride the market wave" and

leverage the value of public assets. This kind of prototypical design thinking has spawned its own verb: "to Copenhagenize."[25] Originally conceived as a marketing term sometime around 2011, the verb now appears regularly in a broad range of newspapers and public-facing media that rehearse the Copenhagen narrative of urban 'regeneration' and advocate for copying the city's entrepreneurial development model. Headlines such as "Lessons for Detroit" (Detroit Free Press 2017) and "How Copenhagen Rejected 1960s Modernist 'utopia'"(The Guardian 2016) exemplify its iterative logics as well as its ideal-typical telos.

The language and logics of 'prototyping' Copenhagen's path are core to the Municipality's city branding strategy as a 'livable' and 'sustainable' 'eco-metropolis.' This strategy has yielded substantial returns, drawing dozens of delegations of urban planners and politicians from around the world annually seeking to 'Copenhagenize' their home cities. Throughout the balmy Danish summers, delegations flock to Copenhagen to study various aspects of the city's Climate Plan, such as renewable energy production, climate adaptation, and bicycle infrastructure design. To this end the Technical and Environmental Administration and related non-governmental organizations, such as the Danish Cyclists Federation, offer experiential 'master classes' that enact the Copenhagen narrative via site visits, lectures and—perhaps most popularly—guided bike tours. What these tours obscure however are the economic conditions of possibility for their objects of study.

As I have briefly outlined above, whereas the postwar welfare city was planned and financed almost entirely by municipal and regional governments, the green city is being planned and financed increasingly by private investment, recruiting big names in contemporary Danish

[25] This term actually originated in the19th Century after the Second Battle of Copenhagen, referring to the British bombardment of the Dano-Norwegian fleet.

architecture—Bjarke Ingels, Cobe, Vilhelm Lauritzen—to design splashy postmodernist structures and high-rise[26] housing enclaves. As architectural historian Michelle Provoost (2017) has pointed out, central to this shift from a managerial, welfarist planning model to an entrepreneurial one is a move from a mandate to shelter the poor to an incentive to house the rich. Nordhavn for instance was ostensibly conceived to "meet Copenhagen's future need for housing," yet that future is clearly being designed for a certain kind of resident. 2150 Nordhavn is now not only the city's newest zip code, it's also the most expensive[27] in all of Denmark. While the Municipality is aware of Copenhagen's serious affordability problem, mandating in 2015 that social housing must account for 25% of all new housing construction, the financialized incentives of By & Havn mean that the remaining 75% is largely aimed at the highest end of the housing market.

Anthropologists have theorized this lamination of neoliberal economics to the logics of 'sustainable development' variously as environmental gentrification (Checker 2020), green screen capitalism (Rajkovic 2020), and status quo utopia (Günel 2019). I am sympathetic to such framings and find them persuasive. But I'd like to take a different tack. What these frames tend to miss, I want to stress, is the extent to which sustainability logics recycle older biopolitical commitments to producing more but also less 'fit' and 'efficient' human kinds. What interests me here is the genealogical connection between green design and progressive welfarist projects that sought to build 'better' bodies, their purported races, and their subsequent generations. By way of conclusion, let me consider the stakes of that connection.

[26] footnote about the scale of these new structures—high-rise is a recent and controversial development in Cph

[27] Average price per square meter as of July 2021 is DKK 58,000/USD 9255

Eugenic City

The eugenic logics of green city worldmaking closely correspond to a relatively obscure, early 20th Century progressive moment called *euthenics* that originated in the United States and was absorbed by midcentury into broader Modernist currents sweeping Europe and Latin America (see Lopéz-Dúran 2018). Billed as "the science of better" and "efficient living," euthenics was, briefly, a variant of Lamarckian eugenics that promoted 'racial improvement' through environmental interventions (e.g. 'slum' clearance, segregation). *Euthenics*, a form of environmental determinism, was thought to precede *eugenics*, a form of biological determinism, in its temporal orientation to present rather than future generations. More specifically, euthenics can be understood as a mode of what was known in the 1920s as 'positive eugenics,' the first of a two-pronged approach that targeted the 'fit' and worked to increase the quality and quantity of their offspring via propaganda, education, and environmental design. The second prong was known as 'negative eugenics,' which sought to limit the reproductive capacities of the 'unfit' and their supposedly degenerative effects on 'superior' bloodlines (Cogdell 2004:46).

As Christina Cogdell has comprehensively demonstrated (2004:16), evolutionary thought offered a powerful ideological framework that aligned the Progressive social reform and eugenics movements with theories of modern art, architecture and design. These alignments are still intact today. In her wide-ranging study of what she calls the "epistemic infrastructures" of population and economy, Michelle Murphy (2017:12) shows how eugenic thought reemerged after the Second World War in forms of racial violence "that rested on economic potential rather than bodily difference…Race did not have to be named in order to enact racist policies." Over the past two decades, Lamarckian ideas have resurfaced worldwide in tandem with major

developments in biology, such as global genomic research and the rise of epigenetics. It's not surprising, then, that they would seep unmarked into other domains.

I want to argue here that the ideological project of prototyping Copenhagen—the iteration of a seamless city, populated by perfected people and objects—is a 21st Century expression of a progressive pathology. The evolutionary and reformist logics of 'Copenhagenization'—a model of green urbanism figured as globally commensurable and exportable—evoke various eugenic metaphors. First, the trope of 'optimization' is laminated onto specific morphologies: the physically active, normatively abled, and well-appointed; this is particularly visible in the administration of the city's bicycle infrastructure strategy (see chapter two). Second, eugenic design thinking is spatialized in the urban form as a *reproductive geography* dimensioned around the bourgeois nuclear family, which in this imaginary is also both white and heteronormative. Third, the reproductive geography displaces from urban cores 'unproductive' social types, such as the student, the poor, the elderly, and from the 1990s onward the 'non-Western migrant' (see chapter three); these demographics are in turn 'upgraded' with young, 'productive' families via the privatization of social housing and nominally green redevelopment projects. With their erasure from both the model city itself as well as narrative framings of its 'regeneration,' social types such as the 'unproductive,' non-able-bodied, and 'non-Western' (i.e. nonwhite) are figured as a 'drag' on municipal 'efficiency' and more broadly the body politic. Finally, the prototype city reproduces logics of racial difference alongside productivity, propagating itself worldwide via a technocratic conjugation of population and economy (Murphy 2017: 34; see chapter four).

The iterative logics of the prototype city mobilize green design as what Michel-Rolph Trouillot (2002) calls a North Atlantic universal: "…words inherited from what we now call the West—which I prefer to call the North Atlantic, not only for the sake of geographical

precision—that project the North Atlantic experience on a universal scale that they have helped to create" (2002:220; cf. Jasanoff 2010). For Trouillot, North Atlantic universals are not merely descriptive or referential; rather they are prescriptive, offering a vision of the world as it should be; divorcing is from ought (Jasanoff 2010:236). Yet "since they are projected as universals, they deny their localization, the sensibilities, and the history from which they spring" (ibid:220). In this way, green design implicates within one frame 'the human' and 'the social,' propping up a North Atlantic order of things in which those most responsible for climate change are perversely held least culpable. As Erik Swyngedouw (2012: 221) has argued, the staging of climate change as a universal humanitarian threat is a key rhetorical maneuver in technocratic discourses of sustainability, which in so doing flattens vulnerability to and culpability for environmental violence.

Another North Atlantic universal being modeled here is the Silicon Valley financial futurity: a new mode of financing and managing the welfare city which colonizes public land in order to attract private investment. A eugenic logic of productivity manifests here in the spatial sorting of a designer human who can afford to subsidize that colonization. The financialized city moreover constitutes a new market for big tech to test, 'optimize' and export its products, perhaps most visibly to East Asia (see Halpern et al. 2017). What does it mean to design urban spaces, or even entire cities, by and for computational machines?

Finally and more speculatively, it seems to me that Copenhagenization, as a green design ideology, is fundamentally concerned with optimizing a model human for inhabiting an inhospitable environment, rather than stewardship of that environment. In this way, it embodies the Modernist—and eugenicist—principle of "designing from the inside out." In the next chapter

I take up this idea, considering the work of the prototype on the bicycle transit network and so on human tissue.

CHAPTER THREE

SERIOUS PLAY

In a city of circa 800,000, there exist more bicycles than inhabitants. Half of all commuters in the Danish capital of Copenhagen cycle to work or school daily, and—as municipal engineers are often quick to note—these cyclists save the city a collective 1.1 million sick days annually. My interlocutors in the Technical and Environmental Administration often emphasized the health benefits of cycling in their PowerPoint presentations for visiting regional and international delegations. As a municipal engineer succinctly put it at one such presentation, "It's cheaper to build bike lanes than hospitals." Copenhagen is covered in over 400 kilometers of bike lanes that, in addition to people, convey throughout the city pets, parcels and letters, biological specimens, and even caskets; dispersing an agile population across an optimized transit network.

This chapter examines a core component of Copenhagen's Climate Plan to build a seamless city powered not by petrol but by a different kind of juice. To that end it considers an ontology of energy and ethics of expenditure via an ethnography of bicycle infrastructure, drawing primarily on the unconventional political economy of Georges Bataille (1933; 1949). Here I'll home in on how cyclists' various tactics of navigation—supercharged or circuitous—suggest orientations to time, labor, and leisure that diverge from those institutionally anchored in sustainability logics of energy efficiency and 'green growth.' More specifically, I'll map out what these orientations suggest for understanding green design as a mode of *negative political economy*; that is, an inversion of liberal market logics grounded in the social division of labor, capital accumulation, and commodity exchange. In conversation with Bataille, Henri Lefebvre

recognized this negativity in what he called spaces of *jouissance*, which for him are fundamentally zones of nonwork rather than production, excess rather than accumulation, and gift rather than exchange. While he is most widely known for his theory of spatial production (1974), Lefebvre was also concerned with the epistemology of method, devoting his last anthumously published work to the analysis of rhythms "individual, biological, and cosmic" (1992). Mirroring Bataille's characterization of Paris defined by a polarity of repulsion and attraction, marked by the extremes of the abattoir and the museum, Lefebvre's circadian rhythm of the city is a dialectic of dispersion and gathering made microcosmic in embodied experience. Most simply, anywhere there is an interplay between space, time and an expenditure of energy there is rhythm. Orderly patterns of bodies in motion form a *eurhythmia*, synchronizing "with one another in the state of health, in normal (which is to say normed!) everydayness" (Lefebvre 2013 [1992]: 25). In the 'city of cyclists,' as the Municipality has branded Copenhagen, normed everydayness is the condition of access to the leisure landscape of the built environment. I turn now to examine its embodied cadences.

Serious Play

Commuting time, Le Corbusier has noted, is surplus labor that diminishes one's available free time. In the *Situationist Theses on Traffic* (1959), Guy Debord envisions an alternate arrangement: "We must replace travel as an adjunct to work with travel as a pleasure" (Knabb 2006:69). In Copenhagen, it seems, city planners have taken up precisely this dictate. From the

Cycle Snake's[1] neon 'racetrack' to Superkilen's[2] obstacle course in Danish multiculturalism, the total environment of the bicycle transit network demonstrates the power that games possess, as Kurt Riezler observes (1941), to build a little cosmos all their own. Consider Kristina, a sailor and lifelong Copenhagener:

> I bike to everything; I would never take the bus. A good day for me is when I get from A to B without any interruptions and people bike quickly. This is when I can have my competitive moment of driving[3] fast and being on track. I love biking like this, because it's like an obstacle course. It's a game; a *dangerous* game that I think is a lot of fun.
>
> —Kristina, 26

For Kristina, travel time is a sort of *serious play* (Bateson 1972). Rather than an end in itself, here maximum efficiency is a bodily technique to achieve a physiological state of pure adrenaline, reframing the instrumental metaphysics of "A to Bism," the Technical and Environmental Administration's (TMF) transit policy shorthand, as a different kind of

[1] The "Cycle Snake" (*Cykelslangen*) is 220 meters of neon orange elevated bicycle bridge that wriggles over the harbor at Fisketorvet shopping center in the Vesterbro section of Copenhagen [**Figure 3.1**]. Prior to its existence, cyclists were forced to either haul their bikes down steep flights of stairs or take winding detours if they wished to cross the harbor. Since its construction, cyclists are momentarily transformed, as one commuter put it, into characters in a racing video game. Much lauded in the international press (see George 2014; Hoj 2014), the Cycle Snake was designed by Dissing + Weitling architects and opened in June 2014 in a festive inauguration ceremony that featured salsa dancing along the snake's surface and a treasure hunt for kids.

[2] Superkilen is a multi-use public space commissioned by Copenhagen Municipality that opened in 2012 **[Figures 3.2, 3.3, 3.4]**. The design concept emerged from a collaboration among the Superflex art collective, Bjarke Ingels Group, landscape architecture firm Topotek1, as well as Nørrebro Lokale Udvalg, a local civic association. According to architect Nanna Gyldholm Møller and artist Rasmus Nielsen, Superkilen thematizes Nørrebro's diversity "as a resource" rather than a "problem" via a selection of 82 objects curated from around the world, such as a swing set from Baghdad and bollards from Accra. All of the objects were either imported from their countries of origin or reproduced as exact replicas. A bike path snakes along the length of the three zones, winding through a sort of obstacle course in Danish multiculturalism.

[3] In Danish, the verb "to drive" (*at køre*) is used to indicate operating both motorized and nonmotorized vehicles.

pragmatism. Alternatively, others characterized their bicycle commutes as meditative, mood-elevating bursts of incidental exercise—less an obstacle course than a glide path. Ulrika, a 38-year old Swedish graphic designer, appreciates her five kilometer ride between her home in outer Nørrebro and office in the city center as unprogrammed time to listen to music, clear her mind before work and decompress afterwards. "I wouldn't want it any shorter," she said of her round-trip 50-minute commute, "or else I'd have to join a gym or something," she laughed. "Also I *hate* waiting for the bus. With the bike you just hop on and go. You're on your own time; you're in the now."

Improbably, a few of my informants cited as undesirable travel durations deemed too brief. Josephine, a 27-year old psychology graduate student at Copenhagen University, regretted a recent relocation closer to campus because it abbreviated her morning ritual of "getting fresh, feeling the air, feeling a bit sweaty and feeling [her] pulse rise." Since her move, Josephine says she has struggled to wake up and get herself moving through her morning routine. "It's so weird to not have that time on the bike. Yeah I really find it a problem."

Several of my interlocutors deployed a sort of hedonic calculus strategically attuned to the rhythms of the workday. Consider Maya and Felix, two twenty-something architects employed at the same firm, who share a multimodal commute from Copenhagen to Køge, a small city 40km south of the capital where their office is based. After first biking to Vesterport Station from their respective apartments in Nørrebro and Frederiksberg, the two architects board a commuter train, bikes in tow, from Copenhagen to Køge, where they then ride together to their office along a winding woodland bike path. While the green route runs several minutes longer than a more direct route facing a motorway, they prefer to take a moment in the morning to experience the sights and sounds of the forest before arriving at work. On the return leg however

they opt for the straight shot in order to catch the earliest train possible. This route is "not as cozy" (*ikke så hyggelig*) because of the contiguous car traffic, Felix explains, but it's faster and allows them to skip the frenzy of rush hour on the return leg.

August, a thirtysomething government employee, flips this sequence, opting for a direct route in the morning and a leisurely detour after work. While the journey from his home in Amagerbro to his workplace in the city center is ten minutes by bike across Langebro, the busiest bascule bridge in Copenhagen, after work he often diverts through the Christianshavn harborfront in order to take in different views of the city. On this route, which doubles his commute home, August rides over Inderhavnsbroen,[4] a pedestrian and cyclist bridge that opened in 2016, through the canals of Christianshavn; often winding through Christiania,[5] a semi-autonomous settlement, along the way. In his own words:

> I guess I like that [longer] route because it's a nice way of reminding myself that after a long day of work, that life is more than work. So to see different people doing different nice stuff—culture, sport, eating good food, enjoying themselves—yeah, it makes me happy.

To be sure, bicycle mobility is not all fun and games, particularly in a climate that yields precipitation roughly half the year and six hours of daylight at winter solstice. Nonetheless, according to the TMF's 2018 Bicycle Account, 63% of cyclists polled reported biking year-round, evidently faithful to the Scandinavian adage that there is no such thing as bad weather;

[4] Inderhavnsbroen opened in 2016 not without controversy. Construction was stalled for seven years as the original design contained an engineering flaw in which the bridge's retractable central section was off by six to eight centimeters and the original contractor selected for the project filed for bankruptcy.

[5] Christiania is renowned for being the most visited site in Denmark. It is known for its residential vernacular architecture, aesthetic references to 1960s hippie culture as well as its open-air hash market, Europe's largest.

only unsuitable clothing. In addition to a dreary climate, my interlocutors often flagged other aspects of their bicycle commutes as vexing or stressful, such as overcrowding; bewildered tourists; hostile or reckless behavior (often invoked with reference to the gendered persona of the MAMIL[6]); and inaccessible design elements (e.g. jagged cobblestones, narrowly dimensioned roads, ubiquitous construction sites). Several singled out *Den Grønne Sti*[7] (The Green Path), a major artery in the city's green cycle route network[8] now perilous in its popularity, as emblematic of the city's bicycle policy gone haywire. While cyclist fatalities are steadily declining in Copenhagen and serious accidents are relatively rare, the increased modal share of cyclists in recent years has compelled some to seek alternate routes. Although Signe, a 30-something Nørrebro resident, used to regularly ride Den Grønne Sti as of several years ago, she now avoids it during the day because she doesn't feel safe:

> I just find it too stressful. It feels dangerous to me; there are too many people during rush hour, and they all ride so fast. But at night it's a different city; I'm actually quite happy to ride it then, because it feels like I have it all to myself. And it's nice with the lighting—it's much better now than it used to be. It was quite dark before and I didn't feel safe riding at night.

[6] The gendered figure of the MAMIL (middle-aged men in lycra,") is a British marketing term associated with aggressive bodily comportment characteristic of the concept of toxic masculinity. The acronym also indexes other forms of social positioning such as racial and class dynamics, i.e. white men who possess the purchasing power to afford expensive racing bikes and gear.
[7] Den Grønne Sti, also known as Nørrebroruten, is an 8km bicycle track that winds through Nørrebro and Frederiksburg's green spaces. With only seven intersections, it is the most direct bike path in the city. Københavnergrøn writes that when one rides on Den Grønne Sti through Copenhagen and Frederiksberg, "you can get the same feeling as when you see a city from a train. It's a bit like being served the city upside down - the more private version of city life. The Nørrebro route opens up a surprising view behind Copenhagen's facade."
[8] Copenhagen's Green Bicycle Routes are a coherent network of 24 planned cycle and footpaths that wind through city parks and waterfronts, bypassing busy roads. The completed network will span roughly 115 km; the first roughly 58.5 km of these have been laid at the time of writing.

More broadly, others compared the experience of biking in Copenhagen to driving on a motorway. Consider Oscar, a Dutch man in his early 60s who had recently relocated to Denmark:

Oscar: The so-called 'Dutch bike' that you see in Copenhagen? Yes, that's what we have in Amsterdam. It's an upright bike, so it slows you down and you relax. You notice things. In Copenhagen you see more and more these days racer bikes—you go SO fast. You don't find this as much in Amsterdam, at least when I was living there. Do you drive?

RKJ: Yes.

Oscar: Have you ever been to Germany?

RKJ: Yep.

Oscar: Ok. Biking in Copenhagen is like driving on the Autobahn. The Autobahn is terrifying because there is no speed limit. Someone will try to pass you going 120km/hour, and behind them there might be a BMW going 180km/hour. It's total chaos. That's what it's like to bike in Copenhagen.

Work and Non-Work

In a relatively recently published manuscript, *Toward an Architecture of Enjoyment* (2014), Lefebvre sought an architectural practice that animated libidinal energies rather than reproduced forms that ossify them. Writing in the wake of the global oil shock of 1973 as well as the publication of *The Limits to Growth* (1972), Lefebvre decried the "monstrous efficiency" with which capitalist modernity metes out social and ecological harms, cycling through "inventions and brutal interventions" in a rhythm proper to capital. The "monster" that is for Lefebvre technocratic urbanism has administered a pauperization of space and time across postwar Europe, submitting workers to long commutes, inadequate housing, and a paucity of green and leisure space. Yet *Toward an Architecture* reframes the problem of urbanism as one of transversal relationships among vectors in spacetime rather than of the city as a specific typology

of settlement. Viewed as an interplay of heterogeneous rhythms, here time resists reduction to a notional domain of spatial administration, of "distances, pathways, itineraries, or modes of transportation…reemerging instead as the supreme form of wealth, as locus and medium of use, and hence of enjoyment" (1991 [1974]: 393). It is within this capacious understanding of time that the term 'jouissance' obtains.

For Lefebvre, jouissance is not a Lacanian term of art but rather an ontology of energy anchored in embodied experience. In conversation with Bataille, Lefebvre understood the human body as a site of accrued energy to be discharged "explosively" and playfully, squandering excess "in a useless expenditure that produces jouissance" (2014: xlviii). Reframing the efficiency incentives of commuting as a mode of serious play inverts the market logics of surplus labor by, as Situationist thinker Raoul Vaneigem writes (1979), "returning to pleasure the energies stolen by work and constraint ... As sure as work kills pleasure, pleasure kills work" (cf. brown 2019). For those who contend with the "obstacle course" that is Copenhagen at rush hour, being *on your own time, in the now* enlivens the tedium of corporate somnambulism, momentarily breaking with the empty, homogenous time of capitalist modernity (Benjamin 1969 [1942]). Yet there is a specific type of body that can navigate this 'dangerous game,' one that deftly comports with the eurythmia it demands. This is a body replete with *excess*: energy, physical capacity, and time (as in lifespan). This normative social physiology (Metzl 2010) suggests an alternative temporal frame to the capitalist futurity of 'green growth,'[9] one that challenges the very idea of *future as growth* (cf. Berardi 2011) by addressing a fundamental need to expend.

[9] According to the OECD, "green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies."

The Cold War epistemologies of international relations that structure technocratic logics of 'sustainable development' are unable to grasp the planetary scale of environmental violence. As Joseph Masco has pointed out (2017), the existential threat of climate change demands thinking on unfamiliar scales: "not of populations and nation-states but of species-level effects on earth systems" (2017: S72). A new critical theoretical language is needed to grasp the complexities of these disparate scales and temporalities, one that can traverse them while holding the planet and all of its life forms in the same conceptual frame (Hecht 2018). In his inventive work of social theory, *The Accursed Share* (1989 [1967]), Bataille articulates one such alternative frame.

Abundant Energies

In this wide-ranging work of political economy, Bataille argues that the unprecedented period of growth inaugurated with the Industrial Revolution demands nothing less than a scalar disruption of basic economic principles. To that end he presents a social scientific model "on the scale of the universe." In contrast to what he describes as the 'restrictive' paradigm of classical economics, Bataille advances a theory of a 'general economy' governing a circuit of cosmic energies. Counterintuitively, he claims that the fundamental societal dilemma posed by this interdimensional play of forces is not a matter of scarcity or necessity per se, but rather *luxury*: within the cornucopian realm of the general economy, "*everything is rich*" (1989:13, original emphasis). Because living organisms ordinarily receive more energy than necessary to sustain their basic functions, they yield an untapped superabundance or 'wealth,' an expansive category that for Bataille encompasses everything from an excess of life force or commodities to the population of a given ecosystem. When that wealth can no longer be assimilated—that is,

leveraged for growth—Bataille writes, it must be luxuriously squandered, "willingly or not, gloriously or catastrophically" (ibid:21). The paradigmatic shift that a theory of general economy advances, then, is to ground a theory of economy in expenditure rather than production.

Bataille's general economy does not condemn profligate expenditure—on the contrary, it affirms it (Stoekl 2007:xiv). What it affirms, however, is a different kind of spending—a different concept of energy—and hence a 'Copernican Revolution' in matters of ethics (ibid:25). While entertaining scenarios ranging from ritual sacrifice to nuclear annihilation, Bataille characterizes expenditure as an effervescent and visceral act. As Catherine Fennell (2019) and Allan Stoekl (2007) have each pointed out, for Bataille, expenditure, like wealth, is a capacious category defined by its fundamentally ethical stakes. The fact of excess—of 'accursed shares'—across a range of ontological forms necessarily entails questions concerning their just management. Accumulation, Bataille cautions, is an invitation for catastrophic ruin. If some share of wealth is doomed to destruction, or simply to 'unproductive' use without potential for profit, it is thus logical, even *inevitable*, to surrender surplus without return; to give without the prospect of gain (ibid:25).

Bataille is concerned not only with economic and ethical fundamentals but also with the social inscription of both in space, and specifically within urban space. It is precisely the ethical potentials of a generous city—one that labors to expend rather than conserve—that I want to take up, returning to some of my own materials. Rerouting efforts to achieve carbon neutrality through the cosmic calculus of the general economy expands a concept of the city—as a spatial and economic structure in a Lefebvrian sense (1974)—from a discrete unit of resource consumption to a vast cosmography of expenditure. Rather than concertedly strive for energy efficiency and sustainability, the generous city achieves both as mere aftereffects of a more

profound burn-off (Stoekl 2007: xviii). This burn-off entails an *incidental* environmental ethics in which stewardship is secondary to the pleasurable depletion of physical and social energies; *enjoyment is a renewable resource.* Against the ideological formations of both eco-austerity and 'green growth'—the former maintaining yet another model of nature as a standing reserve worthy of protection only in terms of its human use value; the latter an uncritical faith in technoscience to address climate change while sidestepping structural inequality—the generous city reworks a notion of wealth as a domain of abundance to be lavishly wasted in ecstatic movement—in serious play. It is this reorientation to abundance and generosity—to giving without gain—to which I now turn.

A Right to Wind

One of the ways that I studied the sociability of the generous city—and to get at the question of access in particular—was by volunteering as a 'pilot' with Cycling Without Age (*Cykling Uden Alder*), a nonprofit social enterprise that facilitates rickshaw (trishaw) rides for elderly Danes living in care homes. The project was seeded on an August afternoon in 2012 when Ole Kassow, a fiftysomething entrepreneurial consultant, showed up to a local care home with a rented rickshaw. As Ole explained when I met with him in the fall of 2013, the idea to offer rickshaw rides to care home residents came to him after repeatedly hearing from older family members and friends about how much they missed the sensory pleasures of cycling as well as the autonomy it affords as vision problems and other health issues had gradually curtailed their mobility. During the 1930s and '40s—at the height of national cycling activity—a typical bicycle commute for the average Danish worker spanned 25-50 kilometers. In this way, cycling is a bodily technique in the Maussian sense: a technical "education in composure" (1972:82) that in Denmark edified a generational habitus.

Gertrude, Ole's first passenger, requested a specific destination: Langelinie, a pier and promenade home to the iconic Little Mermaid statue. A popular spot for strolling and people-watching since the mid-19th Century, Langelinie held special significance for Gertrude: it's where her ship would dock upon return voyages from Greenland, where she had lived as a child. Cruising along the pier with Ole, the squawks of seagulls and scent of pine tar summoned Gertrude's memories of the bustling postwar harbor front and the circumstances and relationships that then peopled her life. Later that evening, Ole returned to his home in a buoyant mood, enlivened by what he described as a sensation of vicarious time travel.

The feeling had evidently been mutual. The following morning, Ole got a phone call from the manager of the care home. "What have you done to Gertrude?" she asked playfully. "Now all the other residents want a ride, too." Heartened by this surge in demand, Ole petitioned the Municipality to subsidize the purchase of a battery-assisted cycle rickshaw so that he could continue to offer rides to residents in his spare time. To his surprise, the Municipality furnished five. Would he be interested in assembling a network of volunteer 'pilots' that could connect with five care homes across the city? Ole agreed to give it a shot, and later that winter recruited among friends 15 volunteers and 10 residents for an inaugural collective ride throughout inner Copenhagen. The event drew around 100 other cyclists trailing behind on their own bikes, and was covered by two national news stations and BBC radio. Through the media coverage the group gained 30 new volunteers, and a nascent network cohered across the city. Ole took to social media to spread the word.

That's exactly how I first encountered Cycling Without Age, intrigued by sentimental scenes of intergenerational companionship featured on their Facebook page. It would be possible to gloss the group's mandate—to leverage unwaged labor as a zone of compassionate care

work—as an expression of a 21st Century market logic rigorously theorized by anthropologists, namely a postwelfarist public morality as an adjunct of austerity (Muehlehbach 2012; Fennell 2015; Siniscalchi 2019). But I'd like to take a different tack. I'd like to consider the possibility that what is being leveraged here is neither compassion nor unpaid work, but rather a sense of horror. Let me return to Ole.

Reflecting on those first few rides, Ole effused: "The feedback we got was amazing! One woman said, 'I feel *alive* again.' We heard that people who hadn't spoken for years had started talking again. Blind elders (local term) explained to volunteers that for them, the experience of cycling was about smelling the flowers, hearing the birds, and feeling the wind in their hair." In fact, "the right to wind in your hair" became the motto of the organization.[10] Since its founding in 2012, the network has expanded in cities across Denmark as well as internationally to 2,050 chapters in 47 countries, as of December 2019. Ole recounted these reflections nearly verbatim in a TEDxTalk in 2014, which he concluded with an impassioned directive: "What Cycling Without Age has taught me is that even if you're close to 100, life can and should be beautiful. And life in a nursing home should be a place of joy and continued mobility."

During the spring of 2018 I volunteered as a 'pilot' with Cycling Without Age at Kastanjehusene, a care home in central Nørrebro. Residents would often request to visit with the goats, chickens and rabbits housed at ByOasen, a small community garden and animal sanctuary nearby, but most outings would involve a tour of Fælledparken, an expansive green space across

[10] In the organization's own words: "We dream of creating a world together, in which the access to active citizenship creates happiness among our fellow elderly citizens by providing them with an opportunity to remain an active part of society and the local community. We do that by giving them the right to wind in their hair, the right to experience the city and nature close up from the bicycle and by giving them an opportunity to tell their story in the environment where they have lived their lives. That way we build bridges between generations and we reinforce trust, respect and the social glue in our society."

the way. One rarely sunny March afternoon I set out for Fælledparken with Hanne, a Kastanjehus resident and native Nørrebroer, as well as with two other volunteers. Annika, a thirtysomething veteran pilot, had tagged along in a second rickshaw to train Katrine, a twentysomething new volunteer who hoped to find "a meaningful way to spend her days" after recently becoming unemployed. After a lap around the park's small lake, Annika and I switched off to let Katrine take the wheel with Hanne while we trailed closely behind. Volunteers rarely ride together, so we seized the opportunity to trade stories about our experiences at Kastanjehusene and some of the residents we had gotten to know.

Annika recalled a memorable encounter from a few years prior. During the last days of summer in 2014, Cycling Without Age organized a 300-kilometer bike tour from Odense, a mid-sized city on the Danish island of Fyn, to Hamburg, Germany. Over the course of three days, a group of 15 volunteers escorted 20 seniors aged 70-90 on 10 rickshaws. After the rickshaw batteries gave out on the final stretch, the volunteers apparently rode the last 20 km "on adrenaline," as Annika put it. Annika had accompanied a man in his early '80s named Arne, who was living with dementia and could no longer speak. Because Arne remained unresponsive throughout the journey, Annika wondered at the time what he might have gained from the experience, if anything. One week later, she received a phone call from Arne's wife, Marie. Marie wanted Annika to know that since Arne had returned from Hamburg, his disposition had transformed: he no longer seemed agitated and depressed but rather calm and in good spirits. She believed that the bike tour had revitalized him physically and emotionally, and expressed her gratitude to Annika and the other volunteers for their service. Annika was thrilled to hear this.

As she recounted this story, Annika gestured to Hanne and Katrine up ahead, who were rounding a curve at a playground. "It's like Hanne here," who is also living with dementia, but

was able to speak and walk at the time. “Right now, she is taking in so many different impressions of the park—she notices the birds, the dogs; she hears the children playing; she feels the sun on her face. But in an hour, she won’t remember what she saw on this trip, or maybe even taking it at all. **But her body will remember**.”

***

Future Anterior

Writing during the violent first decade of the US “War on Terror,” Talad Asad (2007) locates (ostensibly) secular humanist condemnations of suicide terrorism within a genealogy of modern liberalism in which he argues violence and tenderness go together. How this genealogy speaks to Danish cycling enthusiasts is not obvious; let me explain.

In the third chapter of a longer book about suicide bombing, Asad briefly considers the use of the commonplace expression “giving life” in the medical practice of organ transplants. Noting its resonance with the Christian concept of divine sacrifice, Asad argues that the phrase euphemizes two horrifying elements in the whole business of organ procurement: a ‘market’ for body parts and the incitement to violence of human beings ironically called ‘donors.’ Not only is the fact of a flourishing black market in which organs secured dubiously from the healthy poor itself ironic, because vital organ transplants rely on a new mode of determining death—brain death—complex new technologies and ethical arguments are now central to the paradox of “dying to give life.” Legal reasoning in liberal democratic societies seeks to resolve these ambiguous questions of personhood, agency and identity, Asad writes, “but it is continually undermined by the way the modern culture of death feeds our modern passion for life—at least *our* life” (2007:89).

For proponents of Cycling Without Age, intergenerational encounters circulate throughout the city as time travel backward for care home residents *(her body will remember)* as well as forward for volunteers *(this body is what yours will become).* Volunteer 'pilots' relay epiphanic accounts of elders' sensory regeneration: the mute regain speech; the sightless experience synaesthesia; the anhedonic are enlivened. But I want to suggest that it is not the volunteers who 'give life.' For a society in which health is marked by the ability to exuberantly expend excess, the prospect of a stagnant body is experienced as horrifying. Rickshaw rides offer volunteers, in Asad's terms, a "refuge from the helplessness of horror" at encountering the depletion of excess: of youth, vigor, time, possibility; as well as stagnation: of inexorable decline, immobility, and ultimately permanent stasis (death). The name of the network itself conveys that sense of horrified helplessness: *Cycling Without Age*, as if it were possible and desirable to freeze time and refuse its ravages.

Yet there are pleasures to be found in life's inflection with death. As Julia Kristeva (1980) among others have pointed out, affective intensities of horror are compounds of pain and delight, or (as Bataille put it) of ecstasy and excruciating pain. For Kristeva, this compound dynamic is worked out in moments of poetic catharsis: "an impure process that protects from the abject only by dint of being immersed in it" (1980:29). The gift economy of the generous city—one that labors to expend rather than conserve—invites immersion in the abject, and so a cathartic working out of the horrors of aging. A feeling of imminent loss—of youth but also able-bodiedness—mobilizes a politics of care in the present to intervene in a future anterior condition of stasis. Indeed, in the generous city it is the old who enliven the young. More than this, the imminent threat of climate change reframes the motto of Cycling Without Age—a

variation of the Lefebvrian 'right to the city' thesis—as a matter of species endangerment: *a right to wind in your hair.*

As I have sketched throughout this chapter, the generous city is modulated by a specific time signature: the eurthymia, or synchronized patterns of normed everydayness. It follows then that in this normativity, certain bodies will present as arhythmic—out of sync—which can take various forms: older, differently abled, non-Danish, 'non-Western' (see chapter four). In this way, the city's cadences calibrate a dialectic of abundant, hypervisible pleasure and aberrant 'accursed shares;' *it's cheaper to build bike lanes than hospitals.* In the next chapter, I examine this dialectic through a structure of feeling that conditions its imagination and management.

CHAPTER FOUR

URBAN LIVING ROOM

During the fall of 2016, a spate of articles suddenly appeared across various public-facing media centered on the Danish concept of *hygge*, a term commonly translated as 'coziness' and glossed as a relaxed and intimate atmosphere conjured through the creature comforts of the Danish home. Throughout my fieldwork in Copenhagen underway at the time, I collected these articles in a folder on my web browser I called *hyggemania*. Headlines such as "Cocoa by Candlelight" and "How Hygge Can Help You Get Through Winter" index the sensory pleasures and ostensibly restorative powers of the cozy ambience. Stock photos of woolen-socked feet warming hearthside recur across the genre in iconic tableaux. Popular media reached peak hyggemania between the fall of 2016 and 17, during which time no fewer than 26 English-language books on the concept were published, consisting for the most part of glossy interior design spreads and craft and cookbooks, as well as an adult coloring book and even a novel. By June 2017, hygge had earned its own entry in the Oxford English Dictionary after being shortlisted for "Word of the Year," nestled alongside less convivial terms such as *alt-right*, *Brexiteer*, and—the 2016 winner—*post-truth*.

It is perhaps no accident that a cultural imaginary of cozy candlelit pleasures—which no doubt tropes on a popular imaginary of Scandinavian welfare utopia—went viral during a year widely memeified as an existential dumpster fire. As the culture industry has since moved on to cozy-adjacent imponderabilia,[1] it's tempting to dismiss the hygge hype of 2016-17 as a lifestyle

[1] Such as the Swedish *mys* and Finnish *kalsarikänni*, two emic concepts that were framed in popular media in the months following hyggemania as Swedish and Finnish "forms of hygge," respectively.

branding craze cannily deployed as an antidote to everything from bad lighting to political depression. Yet in Denmark, hygge is not just a lifestyle brand or wellness trend (although to be sure it has been monetized recently as both); hygge, I will argue in what follows, is a category of social distinction that invites larger questions concerning the techno- and ethnopolitics of energy transition. More precisely, it challenges progress narratives that valorize innovation as a dominant idiom for transformative social change (cf. Suchman 2011). In this chapter I take up these questions by exploring the sensory politics (Fennell 2011, 2015) of hygge as a particular orientation to qualities of light that, as I will show, is centrally at stake in the imagination of a *socially sustainable* Denmark, a phrase I'll work through along the way. To that end, throughout the chapter I trail ambient intensities cohering around Copenhagen's recent conversion to LED—light-emitting diode—outdoor lighting infrastructure. I home in on hygge as an aesthetic disposition swept up with both changing lightscapes and changing national demographics, and consider how an anthropology of atmosphere illuminates the politics of artifacts amid an urban built environment in social and material flux. My aim is neither to advance a grand unified theory of coziness nor to expose hygge's "dark side;" I am concerned rather with domains of practice and experience through which hygge is coded in systems of meaning and recruited in the service of various value projects. Since some technical aspects of artificial lighting inform the politics of distinction that I discuss below, let me begin with a few specifications.

Administration of Light

Ever since high-intensity gas discharge lamps—which include mercury, sodium and metal halide—became commercially available in 1965, they have been integrated in street,

stadium, and factory lighting throughout the industrialized world. Compared to the incandescent and low-pressure sodium vapor elements that preceded them, high-pressure sodium lamps in particular afford moderately better longevity and luminous efficacy yet maintain a color-rendering index of just 20 to 30% of the visible spectrum. For this reason, until the early 21st Century industrialized urban nightlife was rendered sepia-toned. As artificial lighting technologies become ever brighter, smarter, and cheaper, however, they are recalibrating urban sensory ecologies from sepia to technicolor.

LEDs have illuminated small-scale devices such as watches, radios, and calculators since the early 1960s yet have remained until the past decade cost-prohibitive for large-scale implementation in artificial lighting systems. This feat became viable in the late 2000s as substantial investment in lighting research and development, spurred in part by the advent of the smartphone and tablet, hastened advances in LED technology. While transition to LED at a citywide scale currently requires three to four times the capital investment of conventional appliances, the former outperform the latter by 40 to 70% in energy efficiency and three to four times in lifespan, and thus yield an appreciable cost advantage over time. LEDs are moreover capable of rendering 80 to 90% of the visible spectrum and so improving nighttime visibility and traffic safety. Yet as physicians have cautioned, they may in fact pose new traffic hazards due to the temporary blinding effects of heightened glare. Within biomedicine, LEDs are further subject to growing concern about the potential health risks of long-term exposure to blue-spectrum light,[2] as well as dubiously imputed to enhance public safety in positivist sociology (see Isenstadt

[2] Potential health risks of long-term exposure to blue-spectrum light and associated circadian disruption include among others obesity, depression, and a possible link to breast cancer (see Lockley et al. 2017). Physicians have also raised concern about harmful impacts of intensifying skyglow on the circadian biology of flora and fauna (Kyba et al. 2017).

et al. 2015). Despite this range of concerns and contested claims, the environmental and economic benefits of LEDs have in recent years compelled municipal governments eager to curb carbon emissions and reduce energy consumption to invest in the systemic conversion of outdoor lighting infrastructure. Over the past decade, a string of cities[3] across Europe, East Asia, and North America have done just that, with 221 transitions ongoing or forthcoming worldwide at the time of writing. Copenhagen joined this list in 2013.

As an inaugural initiative of Copenhagen's Climate Plan to become carbon-neutral by 2025, the City Council elected in December 2013 to replace and expand its aging network of some 44,000 high-intensity gas discharge lamps, in place since the early 1970s, with 48,000 LED luminaires rendered in Danish design archetypes **[Figures 4.1, 4.2, 4.3]**. Because LEDs are rudimentary semiconductors, they lend themselves readily to digital automation. For this reason—and in addition to generating light that is brighter and whiter than that of their forerunners—LEDs are 'smarter' and more dynamic: each element is fitted with an individually manipulable sensor that is integrated with a centralized cloud computing platform, which allows for variation in light intensity[4] and so maximally efficient energy expenditure. The conversion is estimated to lower aggregate carbon emissions by 57% and pay for itself over the course of seven years via savings of roughly half of previous annual energy costs.[5]

[3] As of 2019, cities that have undergone LED conversions include Oslo, Berlin, New York, Detroit, Chicago, Los Angeles, and Taipei, to name but a few.
[4] Lightpoints dim according to a time schedule and road hierarchy (i.e. residential and green space-adjacent streets are progressively dimmed while major thoroughfares are fully lit), as well as brighten when cyclists approach. The road typologies moreover correspond to a hierarchy of color temperatures, e.g. daylight on major thoroughfare, neutral white light on major roads, and 'warm' white light on residential streets.
[5] Projected emissions figures were calculated in comparison with 2010 figures. The Municipality allocated DKK 266.3 million (ca. USD 39.75 million) for the project.

After soliciting a tender for an equipment manufacturer, which ultimately went to French lighting developer CiteLum, a subsidiary of EDF (Électricité de France), Copenhagen Municipality's Technical and Environmental Administration (*Teknik og Miljøforvaltningen*/hereafter just 'TMF') tasked a small team of architects, lighting and industrial designers, anthropologists and biologists to develop a comprehensive design strategy for the conversion. Methodologically, the project entailed three preliminary studies that investigated respectively the technical and spatial features of existing infrastructure; local residents' subjective senses of light quality; and projected ecosystemic effects on biodiversity. Based on these studies, and following two major revisions, in September 2014 the team unveiled a regional lighting master plan presenting their findings and recommendations, posted for public view on the Municipality's website (in Danish only). Across four chapters and 230 pages, the document details place-based lighting concepts individually tailored for each of the city's ten administrative districts, blending 'user experience' data with graphics such as neighborhood maps, fixture diagrams, and photographs.

What sort of an object is an urban master plan for an anthropology of design? While the document's technical specifications lie beyond the frame of this analysis, considering its conditions of production pulls into focus a politics of distinction that delineates local social formations of place, taste, and time. Viewed topographically as a *political terrain* (Von Schnitzler 2017), then, Copenhagen's lighting strategy is a diagram through which to trace design's social contours as they materialize in urban space. I turn now to examine these contours in ethnographic relief.

Atmospheric Endangerment

During my fieldwork with the TMF, the designers and social scientists who participated in my research tended to gingerly discuss their collaboration with CiteLum, which they characterized as strained not only by clashing management styles (e.g. a contrast was drawn between a Danish/egalitarian and a French/hierarchical division of labor), but also what they framed as fundamentally incompatible aesthetic dispositions. Iben, a lighting designer who worked as a consultant on the master plan, illustrated the latter contrast by pointing to a perceived collective commitment among the Danish design professionals to historic preservation; a commitment she did not perceive her French colleagues to share:

> You cannot fake historical elements in this city. When CiteLum suggested some ornamental fixture to substitute some old lamp poles at historic sites, people freaked. I saw the meetings with some of the [Danish] architects—they were falling off their stools.

Here Iben distinguishes 'Danish' from 'French' design sensibilities by framing the former as a cultural achievement, laminating a register of national character to specific qualities of form and orientations to time (cf. Murphy 2015:47). The contrast she stages between sensibilities glossed as 'Danish' and 'French' respectively recalls Bourdieu's (1984) characterization of an ideological vantage of a 'pure gaze': "a quasi-creative power which sets the aesthete apart from the common herd by a radical difference which seems to be inscribed in 'persons'" (2010 [1984]:23); (that the empirical 'sensuous nobility' to which Bourdieu refers in his classic sociology of distinction is the Parisian *haute bourgeoisie* of the 1960s ironically motions toward the generalizability of his categories). In the above scene, the Danish architects, by way of an imputed aesthetic competence—an invisible, posited essence—are repelled by the suggestion of simulating historic design elements, which is taken as a sign of 'bad taste' (or in Bourdieusian terms, 'barbarous

taste'). By contrast, the French designers, insofar as they are willing to 'fake' period details, 'betray' an inferior sense of refinement and perhaps also a limited sense of commitment to preserving local material culture.

Iben's description of an observable, qualitatively unequal contrast between 'Danish' and 'French' aesthetics suggests a semiotic ideology of taste that locates the perspective of a 'pure gaze'—here the Danish gaze—within a discourse longstanding in Denmark about the ontological status of Danishness (*danskhed*). More specifically, as detailed in chapter one, I found that the category of Danishness is frequently invoked in both professional design discourse and common parlance to 'explain' a putatively innate appreciation for Danish Modern via recourse to a biological ontology of ethnic essence (finding for example overdetermined expression in the notion of a Danish design 'DNA'). Later in this discussion I will further explore the convergence between the category of Danishness, design, and discourses of ethnic purity as a locus of ideologizing work.

Misgivings about the new fixture specifications were not limited to design professionals. In the months preceding the conversion in 2014, a series of editorials in both local and national Danish newspapers fretted over the impending retirement of the iconic 'Copenhagener lamp,' (*Københavnerlamp*), a rust-colored, half-moon-shaped pendant designed by municipal architect Otto Kaezner in 1977 **[Figure 4.4]**. Capitalizing on anticipatory nostalgia (Boym 2007) for the obsolete artifact, the Municipality sold some 7,000 Copenhagener lamps rewired for indoor reuse via auction website Lauritz.com during 2015, fetching prices of up to DKK 2,000 (USD 300). Other lamps subsequently changed hands via Facebook groups and secondhand shops for lower prices (on average DKK 400/USD 60). The repurposed lamps, which originally housed sodium vapor elements, were refitted with either incandescents or LEDS, and can now be seen

suspended in Ricco's coffee bars[6] across the city, as well as in countless private residences **[Figure 4.5]**. The fixtures ultimately manufactured by CiteLum loosely reference Kaezner's original design.

Full monographs have been dedicated to tracking the afterlives of old objects (Benjamin 1982; Dawdy 2016; Pickwell n.d.). My interest here however lies less with the circulation of artifacts as commodities than with their material affordances as sign vehicles. As we shall see, the reflexive uptakes of such affordances point to semiotic ideologies that mediate their ethical and political entailments (cf. Gal & Irvine 2019; Keane 2018).

In the ethnographic study[7] that informed the lighting master plan, Copenhageners' concerns about the proposed changes to the urban built environment radiated from the fixtures themselves to an emplaced sense of historical time rooted in the recent past. Astrid, an anthropologist who carried out that study, reflected on those concerns:

> They didn't see the options of how this could be, because they hadn't seen it before. They only referred to the bad examples, like, "We don't want light pollution like they have in London."
>
> Especially in Christianshavn—that's a very special part of the city where you have this *old feeling*, and the old lamps. So hey [residents] wanted to protect the history of the city, and I think they were just reluctant to see the city growing too fast, or modernizing too

[6] As it was narrated to me by a vintage lamp dealer in Nørrebro, the origin story of street lamp commodification in Copenhagen goes like this: The owner of Ricco's *kaffebar,* a local coffee house chain, discovered dozens of defunct lamps sitting in a dumpster near one of his coffee bars. Apparently, the electricians charged with installing the new lamps simply discarded the old ones. The owner of Ricco's realized that he could quickly capitalize on the industrial décor trend, then popular in Denmark, by selling the disused lamps on *Den Blå Avis* (DBA), a Danish classified advertisements website. He did just that, showcasing the lamps, rewired with LEDs, in his coffee bars.

[7] Methodologically, the study entailed dispatching an applied anthropologist to each of the city's ten districts during the winter of 2013-14, where she conducted qualitative interviews with 300 residents about their subjective senses of place and light quality. The survey also incorporated input from focus groups convened at local neighborhood associations.

> fast, or losing part of the original identity if we have too much light, and especially colors [*laughs*]. Because of the aesthetics, they were really nervous about using colors and light at that point.

Contracting the scope of comparison in Iben's Danish/French distinction (Gal&Irvine 2019), here the scale is municipal as Astrid ventriloquizes Christianhavners' concerns about a sense of civic identity at stake in changing qualities of light. As with period details on historic streetlamps, the quale of oldness central to chronotopic imaginaries of atmospheric endangerment (cf. Choy & Zee 2015)

Here I want to suggest that new qualities of light may be understood as atmospheric conditions of the present geological epoch conventionalized as the Anthropocene. In order to account for the orders of complexity contained within the morpheme *anthropo*—and so correct for the crucial distinctions in culpability and lived experience that it obscures—I take up Gabrielle Hecht's concept of *interscalar vehicles*: empirical objects that link "stories and scales usually kept apart" (2018:115). Heeding Hecht's charge to keep "the planet and all of its humans in the same conceptual frame," in the next section I approach the sociality of light as an interscalar vehicle through which to simultaneously grasp multiple registers of atmosphere/endangerment as enacted in material practices of dwelling and homemaking. With the political terrain of the lighting master plan in view, I now turn to examine its experiential features.

Ambient Infrastructures

At least since Simmel (1903), theorists of the 'modern metropolis' have sought to chart its perceptual landscapes and map the ways in which they shape the affective interior of the atomized individual. More recently, anthropologists have trained their focus on the worldmaking

and unmaking potentials of *ambient infrastructures* (Larkin 2016): that is, the multisensory surrounds of the technosphere (Haff 2013). Less a system of substrates (Star 1999) than an amalgam of intensities (Masco 2014), ambient infrastructures flicker and falter within collective social networks and regimes of value; what Gregory Bateson would call "an infinite regress of relationships" (1978:249; cited in Star 1999:379). As a burgeoning literature has demonstrated (Berlant 2016; Murphy 2015), it is especially such falterings that reveal the troubled transmissions of their fractal relations. Wayward infrastructures like leaky plumbing (Schwenkel 2015) and haywire heating (Fennell 2011, 2015), for example, generate hyperlocal sensory ecologies—their own felt worlds—that compel the extra/human actors enveloped within them to develop practical workarounds to cope with their vicissitudes. Conceived in this way, as Larkin (2016) suggests, urban life is itself a series of cultural techniques by which locals learn to live in a world populated by atmospheric technologies. Paying attention to such techniques affords access to the lifeworlds in which they are devised.

With the advent of LEDs as ambient infrastructures, we have perhaps entered what Gaston Bachelard (1961) would proclaim a new era of administered light (cf. Schivelbusch 1987). For many Copenhageners, this new era dawned unremarkably or even imperceptibly. More than a few of my interlocutors approved of the conversion; others were ambivalent and many took no notice. But for some—particularly those who live in ground and second floor apartments—electroluminescence has precipitated new strategies and tactics of atmospheric attunement. Consider Matilde, a white Danish woman in her mid-40s who lives with her partner and two young sons in a two-bedroom apartment in Nørrebro. The apartment sits on the second floor of a six-story late 19th Century building on a quiet one-way street, opposite a playground. Matilde's bedroom and living room face the street (west), while her children's bedroom and

kitchen face the building's courtyard (east). Matilde has lived in the flat for ten years, and for the first six framed her west-facing windows with sheer, decorative curtains that gently filtered light throughout the space. She prefers to wake up to the morning light, she told me, so she can "catch the colors" of the sunrise.

Light window treatments or forgoing them entirely are both common practice in Denmark, whose subarctic latitude allows for barely six hours of daylight—which is often gray light—at winter solstice. This dearth of daylight from autumn through early spring is compounded by roughly 180 days of precipitation annually (that is, about half the year), which means that Danes tend to spend a significant amount of time indoors and especially at home. My interlocutors often cited the dreary Danish climate as the ideal precondition for staging cozy indoor atmospheres. While I want to hold aside the environmental determinism that informs such observations, I want to hang on to one of its central insights: that atmospheric qualities construed as melancholic are imputed to actualize a *heightened* sense of coziness, a point to which I'll return.

When LEDs arrived on Matilde's street in the fall of 2014, she replaced her sheer curtains with blackout shades and heavy drapes not to shield the late evening summer sunshine but rather to blunt the fluorescent orb that had suddenly appeared parallel to her bedroom window **[Figure 4.6, 4.7]**. "It's like daylight *all the time*," she said, "and I can't sleep with that. You need to be able to sleep!" Lateral glare from the new streetlamp also seeps into Matilde's living room (the technical term is 'light trespass'), which has altered what she called the 'cozy mood' (*den hyggelige stemning*) of the space in the evening **[Figure 4.8]**. "If you were sitting on the sofa near the window," she said, "it would be like, 'Whoa, I need to move over.' Now we use the blackout shade at night, and it's really not so cozy."

Others echoed Matilde's characterization of the new lightscapes as either uncozy/creepy (*uhyggeligt*) or too bright (*for lyst*). Consider Eva, a thirtysomething white Danish woman living in a third-floor flat of a 1920s housing cooperative in the Nordvest district. Like Matilde, Eva felt that the LEDS impinged on the cozy atmosphere of her home, and bought blackout shades for her living room windows to mitigate the light trespass. Yet for Eva, a sense of intrusion exceeded the bounds of the domestic interior. After a string of LED lampposts sprang up around the park behind her apartment complex in the fall of 2015, she began rerouting her evening walk with her two dachshunds. Instead of circling the park one last time before turning in for the night, Eva circumnavigated along a stretch of Borups Allé, a six-lane arterial road fronting her building that had not yet undergone LED conversion. She preferred the 'warm light' (*varmt lys*) of the sodium vapor lamps that had once encircled the park and at the time still lined Borups Allé to what she called the 'sharp light' (*skarpt lys*) of the LEDs, which she claimed "just illuminates potential dangers." While Eva's new routine was a trade-off—she didn't find the stroll alongside heavy traffic particularly cozy—she was nonetheless disturbed enough by the 'sharp light' to privilege vision over other sensory modalities and modify her spatial praxis accordingly.

Ontologies of Coziness

What 'potential dangers' might an anthropology of atmosphere render visible, and how is hygge at stake in the cultural politics of disappearing night? To get at these questions, we'll first need to take a closer look at the category of hygge in etymological and ethnographic context. Etymologically, the word descends from Old Norse and first appears in Norwegian denoting 'comfort' and 'well-being.' As anthropologist Jeppe Trolle Linnet notes, other references include notions of "safe habitat; and joyful experience, especially in one's home and with family; and a

caring orientation, especially towards animals and children" (Linnet: 2011:22). Hygge is closely related to Scandinavian concepts such as *kos* (Norwegian) and *mysighet* (Swedish), as well as loosely analogous to West Germanic words such as *gemächlichkeit* (German) and *gezelligheid* (Dutch). Despite the family resemblance, *hygge* is conventionally regarded within Denmark as irreducibly Danish and nongeneralizable as a pan-Scandinavian regional normativity. What makes the Danish variant distinctive, scholars have noted, is its semantic flexibility in everyday speech as well as its strong association with aesthetics and with qualities of light in particular.

Because the concept of hygge captures a range of sensory associations and ontological properties (such as among others warmth, comfort, snugness, informality, conviviality, and authenticity), it has proven challenging to abstract into precise language. To that end an incipient ethnographic literature has offered some initial contributions (see Hansen 1976, 1980; Bille 2015, 2019; Gullestad 1989; Linnett 2011). With particular reference to associated light practices, I wish to expand these accounts with the proposition that hygge is perhaps best understood as an *affective atmosphere*, to borrow Ben Anderson's (2009) felicitous phrase: a multisensory structure of feeling that participates in wide-ranging processes of social indexicality.

In her proxemic study of Danish domestic space in Copenhagen in 1968-69, Judith Friedman Hansen sketches a series of scenes that mark a set of sheltering, encapsulating spatial dimensions associated with staging cozy atmospheres (Hansen 1976: 57). In one such scene, Hansen describes the spatial practice of an unnamed woman who devised for herself a *hyggekrog* (hygge-nook) in a corner of her apartment to soothe her sense of loneliness while her husband, a sailor, was dispatched at sea for months at a time. Inside the nook, which she enclosed with a set of homemade, open-weave curtains, the woman would sit and do her evening reading and

knitting. Upon her husband's return, she removed the curtains and together they inhabited the full area of the apartment. In another scene, Hansen recounts how an elder couple constructed a *hygge*-corner in their living room, composed of a 30 square-foot raised platform bounded by a low wooden balustrade that framed a small window. Within the space the couple had placed a small round table and two chairs on which they would sit and *hygge sig* (reflexive verb form: have a cozy time).

The association of hygge with a commitment to the maintenance of creature comforts above all else has been critiqued within Danish literature and more recently in Danish media as a contemptible form of bourgeois complacency, particularly when deemed 'excessive.' An amusing illustration of this critique that dramatizes a link between hygge and qualities of light features in Danish poet and novelist Jeppe Åkjær's 1916 poem *Historiens Sang*, in which Åkjær compares the Danish nation to an infant serenely enjoying a cozy glow as the world burns around their crib. While it is not my task to moralize, a fleeting scene from my fieldwork illustrates the hazardous lengths to which a 'cozy' ambience may be maintained. While driving with a friend from Copenhagen to Sejerø during the summer of 2016, somewhere en route we noticed a camping van barreling along the motorway with what appeared to be lit candles flickering inside its passenger windows. We sped up for closer inspection: yes, these were real flames.

Danes collectively burn more candles than any other national population, which has in recent years prompted scientists at the University of Copenhagen to investigate the long-term health effects of particle pollution emitted by candles. Notably, a link between light and well-being is enshrined in the Danish language. For example, the term '*lysslukker*'—light snuffer—translates to English idiomatically as 'killjoy.' Lighting is a core element of staging the cozy ambience, as the emergent ethnographic literature has noted. Cozy light (*hyggelys)* has distinct

aesthetic conventions. Above all, it is construed as warm, dim, and 'alive.'[8] In the context of social gatherings, cozy lightscapes allow for eye contact among members of a group but should not entirely illuminate a space. Anja Jørgensen notes in such contexts partial illumination may function as a social distancing strategy: "people can manage their distance to each other by 'hiding' in the shadows and, by directing their gaze toward the flames, can avoid direct eye contact that may feel too intense" (Jørgensen 1996:43). The gentle, partial glow of cozy light erects ambient shelters within and around a cluster of familiars, circumscribing boundaries of intimacy and stranger sociality therein.

Blue-spectrum color temperatures are widely perceived within Denmark as decidedly uncozy, as my interlocutors often insisted. The European Union's progressive phase-out of incandescent lightbulbs, which took effect in September 2012, legislated this aesthetic into tension with a wider moral economy of atmosphere. Just after the imminent lightbulb ban (*lyspære forbud*)—as it is known in Denmark—was announced in the spring of 2008, Danish retailers rapidly depleted stock in incandescents and struggled to replenish their wares in the months and years ahead.[9] Following the ban only light sources certified as energy-efficient would be legally salable within the EU, which at the time included halogens (which have since also been phased out),[10] LEDs, and compact fluorescents. In Denmark, the lightbulb ban sparked

[8] 'Candlelight' translates in Danish as 'living light' (*levende lys*). Danes collectively burn more candles annually than any other population globally.

[9] I learned of this practice first-hand while subletting a colleague's Nørrebro apartment when I discovered a dresser drawer full of incandescent lightbulbs. When I asked my colleague about the stash, she explained that she hoarded incandescents both because her vintage lamps could not accommodate LEDs (without rewiring) but also because she perceived qualities of LED light to be 'too cold.'

[10] Halogens were added to the lightbulb ban and are no longer salable within the EU as of September 2018.

a minor moral panic that played out in a heated debate[11] well-documented in Danish media about the social costs of technological innovation, and by extension, supranational commitments to 'sustainable development' (cf. Bille 2015).

The Danish resistance to the EU incandescent ban and attendant phenomenon of lightbulb hoarding index hygge's fundamentally nostalgic temporality. Hansen observes that as an aesthetic convention, hygge is "essentially conservative. It thrives among the unchanging stability of old furniture and old habits" (1976: 54). To Hansen's phenomenology of Danish domestic space I wish to add that hygge, as an aesthetic regime of value, materializes a temporal orientation to pastness not only among intimate object worlds and sepia lightscapes—that is, among things and atmospheres—but also in relation to *people* taken to embody the nostalgic qualia of which hygge is indexical: comfort, familiarity, warmth etc. My interest here however is in the inverse proposition: that *uhygge* (uncoziness/creepiness) signals social identities apprehended as 'unfamiliar' and so potentially threatening. In the next section, I return to Nørrebro to consider these signs of difference and the forms of social positioning that make them ontologically plausible.

Sensory Politics of Lightscape

The phrase *ikke så hyggeligt*—not so cozy—was among the most common expressions I encountered as I followed the social life of LED conversion in Copenhagen. It was typically invoked to describe an atmosphere perceived as cold and uninviting, like Matilde's living room or a public park at night. It was also invoked, I found, to refer to people perceived as unable or unwilling to reproduce or 'properly' appreciate the cozy aesthetic, which was alternately

[11] Notably, the phrase "light bulb socialism" emerged during this debate.

construed as imperiled by LEDs or endangered by their absence in specific contexts (a seeming paradox to which I will return). Consider Caroline, a lighting designer who worked as a consultant on the lighting master plan in 2013. In one of our conversations about her work, Caroline posited a corresponding axis of contrast between warm and cool color temperatures and 'Danish'/'un-Danish' aesthetic sensibilities, respectively:

> Maybe you've seen the streets at Nørrebro? Where there's a lot of Danes with other ethnic backgrounds—Middle Eastern, Arabic—and there is one street in particular where there is a barber shop and some kebab restaurants, and all of them have blue light. *All* of them have blue light inside! It's not so cozy, that light.

The barber shop to which Caroline refers is called Golden Touch, a small business owned by Iraqi Danes. It sits on a busy commercial stretch of Nørrebrogade, the district's main drag, flanked by a kiosk, a couple of kebab shops and an upscale burger joint. As evidenced in the photograph below **[Figure 4.9]**, the contrast in color temperature Caroline identifies is heightened by the juxtaposition of Golden Touch, the kiosk, and kebab shops with Burgerklubben, a U.S. fast food-themed burger restaurant illuminated by warm-toned, wall-mounted Edison bulbs (LED filament) and low-hanging pendant fixtures.

In attributing qualities of light to qualities of persons, Caroline extends the semantic domain of hygge across axes of social distinction that index corresponding categories of native/other, and in Bourdieusien terms 'pure' and 'barbarous' tastes (1984). In my fieldwork I found that this axis of differentiation appeared as a schema of qualitative contrast across expressions of anxiety around immigration and a notion of 'Danishness' (*danskhed*) under threat (cf. Gal 2019). For example, one of my interlocutors, a white Danish man in his 60s, claimed to be able to deduce the ethnicity of a household as 'un-Danish' (*udanske*) simply by observing the style of string lights draped across apartment balconies during the winter holidays. Immigrants, in Thomas'

judgement, “don’t have the cozy light” (*hyggelys*, here identified as yellow string lights). “They go for the sharp colors,” he said. Further, several of my informants singled out as *uhyggeligt* a pre-conversion Griffenfeldsgade **[Figure 4.10]**, a mixed-use Nørrebro side street on which several Ethiopian and Lebanese restaurants and an African barber shop are situated; one thirtysomething white Danish woman remarked that it was so dark that it looked “like Africa.”

Over the past several decades, Nørrebro has become a locus of xenophobic and specifically Islamophobic sentiment in Danish mainstream media and political discourse, sentiments which were inflamed during what is known as the European refugee crisis of 2015-16. As such, it makes an apt site to examine the intersection of aesthetic normativities with racially charged discourse. To get at the semiotic ideologies that animate both, let me place them within a wider historical and sociopolitical context.

‘Parallel Societies’

Nørrebro is distinctive among Copenhagen’s ten districts—as well as nationally—for its socioeconomic and ethnic diversity. While Nørrebro has historically been a working class district home to ethnic Danes, its demographic composition has gradually diversified since the 1970s as the construction of new social housing allowed a wider segment of society to move into the area, including university students and migrant families. Today 27% of Nørrebroers are identified in state census data as ‘new Danes’ (*nye danskere*), an official category that includes descendants of immigrants born in Denmark. Of this figure, roughly 20% are identified as ‘non-Western migrants.’

Nationally, Denmark has experienced significant demographic shifts since the late 1960s, when a national guest worker policy (*gæstearbejdere*) enacted in 1967 recruited labor migrants

from Turkey, Pakistan, and what was then Yugoslavia to support an expanding manufacturing economy. Following the program's end in 1973 in response to the global oil shock and an attendant economic recession, and as Denmark entered the European Community (now European Union) that year, Danish immigration policy restricted further labor recruitment to within Europe. This first generation of labor migrants was succeeded by waves of family reunifications for existing guest workers as well as an increasing number of refugees, primarily from Lebanon, Iraq, Iran, Chile, Bosnia and Somalia. By the late 1980s, the number of non-ethnic Danes residing in Denmark had multiplied from an estimated 20,000 in 1973 to some 250,000, transforming an ethnically homogenous state into a more multiethnic society. Yet as historian Bo Lidegaard (2016) argues, Danish welfare society had not in the process come to accept multiculturalism as a condition of the social contract; a claim co-signed by Queen Margrethe II in her 2016 historic monograph.

Following the post-Cold War geopolitical realignments of the early 1990s, racialized anxieties about the integration of 'new Danes' and the question of 'Danishness' coalesced in Denmark around the category of the 'non-Western immigrant' (*ikke vestlige invandrere*), and more specifically around Danish Muslim communities. In step with broader Scandinavian shifts rightward and the rise of the right-wing nativist Danish People's Party (*Dansk Folkeparti/DF*)[12] within Denmark, the Danish state has since 1989 pursued welfare chauvinist policies that marginalize migrants, refugees, asylum-seekers and their descendants. These groups have been increasingly maligned in the integration debate as drains on the welfare state and threats to

[12] The rejection of multiculturalism is core to the populist platform of the Danish People's Party (*Dansk Folkeparti/DFP*). Founded in 1995, the DF hews close to the center-left Social Democrats on social welfare issues yet tacks to the far right on immigration, and has shaped immigration policy and discourse in Denmark since the 1990s.

'social cohesion' (*social sammenhæng*), despite an economic imperative for higher participation in the Danish labor force. Emerging from this historical context, a nexus of liberal political ideals such as egalitarianism, secularism, and free speech gained currency in Danish political discourse as constitutive of Danishness itself and, as I would like to add, as a stand-in for race.

A fundamental antagonism between cultural values staged as Western/democratic and non-Western/undemocratic is a key axis of contrast in the ideological construct of Danishness (cf. Hervik 2018). During the late 1990s, this contrast became iconized in the racialized stereotype of the 'parallel society'[13] (*parallelsamfund*), a phrase directed at non-Western, mostly Muslim migrant communities to mark a putative rejection of conventional Danish social norms and practices. The notorious 'Mohammed cartoon crisis'[14] of 2005 is widely cited in recent critical theoretical analyses as an inflection point in anti-Muslim Danish nationalism and in

[13] The phrase 'parallel society' (*parallelsamfund*) (Heitmeyer 1996) entered the Danish lexicon in the late 1990s and has suffused the integration debate in Denmark ever since. German sociologist Wilhelm Heitmeyer coined the phrase (*parallelgesellschaft)* in a 1996 interview published in the weekly newspaper *Die Zeit* about his empirical research on Islamic fundamentalism among Turkish youth living in Germany. Heitmeyer used the phrase both descriptively, as an ethnographic category to characterize a purported tendency of young Turkish Germans to separate themselves spatially, socially and culturally from ethnic German society, as well as normatively to warn against potentially corrosive effects of such 'parallel' coexistence. The phrase has since been coopted in Denmark and elsewhere in Europe—particularly in the Netherlands, Norway and Sweden—as a racially charged term deployed to malign non-Western immigrant populations, and specifically Muslim communities, for a perceived rejection of Western social norms and liberal political ideals.

[14] In September 2005, the Danish newspaper *Jyllands-Posten* published a now-notorious series of 12 cartoons (solicited by the editors) caricaturing the Prophet Mohammed, one of which depicts a figure wearing a turban that is in fact a bomb with a lit fuse. Editor Flemming Rose framed the editorial, entitled 'Mohammed's Face' (*Muhammads Ansigt*), as a protest against a perceived Islamic imposition of 'self-censorship' in Denmark, as well as a broader critique of an ongoing debate within Denmark about the putative incompatibility of Islam with 'modern, secular Western societies.' While many in the Danish Muslim community expressed outrage over what they argued was a deliberate provocation—depiction of the prophet is widely considered to be blasphemous—many more Danes were in turn aggrieved by their outrage, a dynamic that would come to define the incident. Hostilities quickly escalated, prompting violent protests at Danish embassies in Beirut and Damascus.

Muslim-Danish relations more broadly (see Henkel 2010; Hervik 2018). As anthropologist Heiko Henkel (2010:69) has argued, the cartoon controversy forged new tacit alliances between the Danish nativist right and social-democratic center, as well as allowed Danes to reimagine themselves as European in new ways, aligning the Danish ideological variant of secularism with similar currents in Germany and Sweden against pious Muslim communities positioned as contravening 'Western' cultural values. In this performance of Danishness *as Europeanness*, Henkel argues, a new emphasis on 'secularity' has come to figure centrally in Danish political life.[15]

More recently, proponents of Danish nationalism-as-secularism have seized on the figure of the 'non-Western asylum seeker,' which circulated in Danish media during the events conventionally regarded as the 'European refugee crisis' of 2015-16, to push for the intensification of anti-Muslim immigration policy. More than 36,000[16] asylum seekers entered Denmark during this period, most traveling from Muslim-majority countries in regions south and east of Europe, the plurality of whom hailed from Syria, Afghanistan and Iraq. According to the United Nations High Commissioner for Refugees (UNHCR), over 75% of migrants arriving in Europe during the crisis had fled war and/or persecution in these three countries. As arrivals peaked in Denmark in September 2015, photographs in Danish newspapers captured chaotic scenes of hundreds of asylum seekers walking on Danish motorways; many of whom were en route to neighboring Sweden, which maintains more generous asylum policies.[17] In early

[15] For instance, in 2018 the center-right government passed a so-called burqa ban, even though fewer than 0.1% of Muslim women in Denmark wear head scarves.
[16] This figure is a fraction of the number of refugees that Germany and Sweden accepted.
[17] Denmark accepted 2,365 refugees in 2017; Sweden accepted nearly 28,000.

September, the Danish government suspended all rail service to and from Germany due to 'exceptional passport checks,' according to state-owned railway corporation DSB.

Following these events, the then-right-wing coalition government swiftly passed a series of measures intended to deter prospective asylum-seekers from taking refuge in Denmark. Such efforts included, to name just a few, slashing by 45% an 'integration benefit' social welfare package for those residing in Denmark fewer than seven of the past eight years; extending the time period after which family members may rejoin refugees from one to three years (i.e. family reunification); tightening qualifications for permanent residency; and passing what is now (notoriously) known as the 'jewelry law,' a bill that authorizes the confiscation of refugees' cash and valuables exceeding DKK 10,000 (USD 1,485). In September 2015, the Danish government placed a series of advertisements in four Lebanese newspapers outlining the new disincentivizing policies. Just over a year later in November 2016, the Danish Parliament voted to indefinitely suspend a program to receive 500 refugees annually through the United Nations High Commissioner for Refugees (UNHCR), characterizing this and the preceding statutes as an 'emergency brake' necessary to halt Denmark's intake of asylum seekers. In its 2016 annual report to the Organisation for Economic Cooperation and Development (OECD), the Danish Ministry of Immigration and Integration characterized the new policies as necessary initiatives to weed out those with 'low integration potential' and remedy the existence of 'parallel societies' living in "vicious circles of bad image, social problems and a high rate of unemployment" (2016:63).

For a country committed to a green transition but not a demographic one, the likelihood of increasing environmental displacement may inflame these ethnonationalist sentiments.

Climate change is both driving displacement and multiplying risks[18] for displaced populations worldwide. According to the UNHCR, in 2021 more than one billion people live in countries with a high risk of climate-related hazards and limited capacity to recover following extreme weather events. The populations of small island states, the Sahel belt and low-lying megadeltas are most vulnerable to environmental displacement. More broadly, poor people who lack the resources to relocate and rural fishing and farming communities, whose livelihoods are climate-sensitive, are also vulnerable. In 2019, roughly 95% of displacements due to disasters were triggered by extreme weather events, particularly storms and floods. One can imagine a scenario in which climate adaptation means fortifying built environments as well as national borders.

In 2019, the statistical category of 'non-Western immigrant' corresponded to 8.5% of the Danish population (5.8 million in 2020) (Danmarks Statistik), with 30% of new migrants settling in Copenhagen and Aarhus, Denmark's two largest cities. As it happened, the influx of asylum seekers arriving in Copenhagen in 2015-16 coincided with the city's brightening lightscapes; a coincidence that, I found, laminated an increasingly xenophobic discourse onto an aesthetic one. In the next section, I consider semiotic processes of rhematization at work in the racialization of lighting aesthetics, typified in the characterization of a dimly lit Nørrebro street as "like Africa" and the claim that non-ethnic Danes prefer "sharp colors" and "blue light." As we shall see, here changing atmospherics are taken as signs of changing demographics.

[18] For instance, climate change is causing food and water insecurity and increasing competition for resources.

Power Failures

During the course of my fieldwork in Copenhagen from 2016-18, a series of blackouts darkened stretches of the city. Because the blackouts were triggered by localized interference with the new LED street lamps rather than systemic failure, they affected discrete sections of particular neighborhoods—Nørrebro for the most part as well as Amagerbro—rather than the Capital Region as a whole. I was living in Nørrebro at the time, and got stuck several times biking home in the dark. Intersections could be tricky, but remarkably traffic proceeded during the outages without incident. Riding along a pitch-black Nørrebrogade, which boasts the busiest bicycle track in Denmark,[18] the city seemed preternaturally serene. Swarms of blinking bike lights appear bioluminescent, like so many twinkling fireflies.

On a Friday night in September 2018, I was headed home along a darkened stretch of Guldbergsgade, a collector road parallel to Nørrebrogade, when I noticed flashes of Reflex Blue[19] flickering ahead. Recognizing the flashes as emergency vehicle lights, I slowed to a stop and joined a small group of onlookers gathered in front of a string of restaurants. Apart from the flashes of blue, darkness blanketed the length of Guldbergsgade and its sidestreets. I asked a fortysomething white woman standing nearby what was going on. She replied that there had been a shooting on Meinungsgade not long after the light cut out. "Of course it can be super cozy (*superhyggeligt*) to suddenly be able to see the stars in the sky," she added, "but now that this area has become a war zone I'm biking home with my heart in my throat."

[18] As of 2019 Nørrebrogade contains the most highly trafficked bicycle track in Denmark. It conveys some 40,000 cyclists daily.
[19] A cobalt blue hue also known as 'Euro blue' that is the official color of emergency vehicle lighting in Denmark.

I later learned through local news reports that three men had been shot during the incident but not critically wounded: one in the arm, another in the shoulder; the condition of the third was unknown. Local media described the first two men as 'random' bystanders in their '50s, while further details about the third victim's identity or condition were not disclosed, presumably due to some connection with the ongoing investigation. A blackout had preceded the incident by about an hour: street lamps along six residential sidestreets went dark around 8pm; 8-10 shots were fired on one of then just after 9pm.

Several of the blackouts that occurred in Nørrebro during my fieldwork coincided with instances of gun violence that intensified across the neighborhood in 2017 and 2018.[20] Danish news media framed these incidents as escalations of a turf war between rival gangs comprised of teenagers and young adults with 'non-Western ethnic backgrounds.' While a police investigation failed to establish a material link between the blackouts and gun violence, some of my interlocutors in the neighborhood nonetheless imputed a causal relationship between them. Consider Jan, a white Danish man in his 60s and former high school teacher who now works as a home health aide. I met Jan in the spring of 2018 at a community meeting at a church in Nordvest, a district bordering northwestern Nørrebro. Medborgerene, a local civic organization affiliated with the Municipality, had convened the meeting to discuss the street lighting situation at Nørrebro Station, an aboveground commuter rail hub. Part of Medborgerne's 'Safe Station' campaign, the meeting organizers solicited input from local residents about the lighting conditions at and around the station, which an apparent consensus held was dark (mørk), unsafe (utrygt) and uncozy (uhyggeligt); especially at the station's overpass. I happened to sit next to

[20] As of December 2018 the conflict in Nørrebro involved 42 shootings. 25 people were shot and three were killed.

Jan as the meeting organizers wrangled the 50 or so participants into several breakout groups, tasked to record on index cards keywords that arose during discussion. I asked him what he thought about the lighting conditions in the neighborhood:

Jan: It's terrible. I feel very unsafe, and the reason for that is that the Muslims keep the areas around their mosques and schools dark at night.

RKJ: Why is that?

Jan: So the young gang members can run around causing trouble and shooting at each other.

RKJ: Do you think that more and/or brighter lighting in those areas would make you feel safer?

Jan: No, because they will keep at it anyway. On Tagensvej someone is shot or knifed every week.[21] Did you know that Mohammed is now the most common name for children born in Denmark?[22] You see the priest over there? She is married to a Muslim. And see the woman in hijab sitting at the entrance, signing folks in. In ten years' time this church will be a mosque.

While Jan's Islamophobic comments are obviously incendiary, they are not so far off from a racially charged discourse cohering in Copenhagen around luminosity and ethnicity. Consider Rasmus, a CiteLum electrician who repaired infrastructural damage following the Nørrebro and Amagerbro blackouts. In addition to disclosing the technique[23] used in these cases, Rasmus described other kinds of lighting vandalism happening in Nørrebro, including smashed lamps; severed wires; and luminaires spray-painted black. The "light-snuffers" (*lysslukkere*) "are quite good at it," he observed wryly, and speculated that they perhaps had access to electrical

[21] While to my knowledge two incidents occurred on Tagensvej during my fieldwork, Jan's claim is a gross exaggeration.
[22] This is in fact not true. The most common for boys born in Denmark in 2018 was William; for girls it was Ida.
[23] While my informants in the Technical and Environmental Administration relayed in detail the method of the interference, they did so off the record for fear that public disclosure of technical details would inspire copycats incidents. For this reason I have withheld these details here.

expertise. Rasmus characterized the actors involved as male teenagers of non-ethnic Danish descent:

> I've only seen men. These are young people, teenagers. Ethnic background was a mix, mostly black; but most of them was not Danish people. Not to be racist, but it was not the Danish people. Not the second generation anymore, maybe the fourth generation of people coming. I guess that family—they have lived in Denmark all their life.

Regarding possible motives for the Nørrebro blackouts, Rasmus emphasized that while a correlation to instances of gun violence following shortly thereafter was likely, causation was impossible to determine given that the smart lighting management system logs status once per hour, so the exact timing of power failure was impossible to pinpoint. At Nørrebroparken, where luminaires were repeatedly spray-painted black, Rasmus linked the vandalism to an illicit marijuana market situated there in which it seemed dealers preferred to transact in the dark. He told me that the dealers would often taunt the technicians as they made repairs: "They love doing everything; they actually laugh and say, "That's fine; you fix it. We damage it again." Other instances of street lamp vandalism in Nørrebro and Amager were probably just "bored kids" acting out.

In Nørrebro, CiteLum technicians work during daylight hours out of safety concerns (a departure from protocol, as they typically arrive posthaste after an outage). After an incident during one of several blackouts at Mjølnerparken, a social housing complex, in which a bike chain lock was used to smash a window of a CiteLum van, the technicians agreed to adjust their work schedules. "We don't want any people to be hurt when they come to work," Rasmus explained. "[Mjølnerparken] is one of the ghettos (see epilogue), so we don't take the chance." Rasmus attributed the blackouts at the complex to young male residents also involved in others across the neighborhood.

Worth noting here is Mjølnerparken's location along the northwestern edge of Superkilen,[24] a highly programmed public space populated by among other objects a series of stylized LED street lamps, a light sculpture and several neon signs **[Figures 4.11, 4.12]**. As a resident during my fieldwork of a building overlooking Den Sorte Plads (the Black Square), one of the space's three color-blocked zones, I can attest to the excessive radiance of these light sources. While I was able to manage the lateral glare in my bedroom with heavy curtains, I wondered if the actors responsible for the blackouts at Mjølnerparken, which included lighting elements at Superkilen, were residents who simply wished to sleep in peace.

Whether the intermittent blackouts across Nørrebro are causally linked to gun violence, an informal cannabis trade or simply a desire for darkness at night remains unknown. What is clear however in talk about them and about changing qualities of artificial light more broadly is a lamination of a racialized and specifically anti-Muslim discourse onto an aesthetic one. Across this dissertation, I have argued that foundational to Danish welfare society as an imagined community is an ontology of well-being examined in this chapter through the hegemonic sensory formation of hygge. I want to now zero in on the different registers of social positioning through which this lamination is semiotically achieved.

[24] On March 1, 2018, Mjølnerparken became the public face of the Danish conservative coalition government's so-called "Ghetto Plan," a sweeping policy directive that spatializes social housing redevelopment as an instrument of welfare nationalism. In the policy, which then-Prime Minister Lars Løkke Rasmussen unveiled at a press conference in Mjølnerparken's community center, the Danish Ministry of Transport and Housing designates as 'ghettos' 27 residential zones across Denmark based on criteria such as 50% 'non-Western' ethnicity, educational attainment, employment rate, and crime rate. The Ghetto Plan, fully titled "One Denmark Without Parallel Societies: No Ghettos in 2030," comprises 22 initiatives to "integrate the ghettos." These include among others double punishment for certain crimes within designated borders; stricter conditions for social welfare benefits; mandatory Danish-language daycare for young children; and the demolition or redevelopment and privatization of social housing cooperatives. Mjølnerparken is slated for redevelopment sometime in 2022.

Despite growing up in Denmark, speaking fluent Danish and presumably holding Danish citizenship, the young people involved with street lamp vandalism in Nørrebro are in Rasmus' view "not Danish." That their families may have been living in Denmark for several generations is immaterial; for Rasmus, non-ethnic Danes will never be Danish. This view on the ontological status of Danishness crystallizes what in recent years has become a mainstream current in Danish political discourse: the racialization of 'non-Western' (i.e. nonwhite) ethnicities as non-Danish. I want to argue here that the social persona of the 'non-Western immigrant' becomes iconized as 'uncozy' via a semiotic process of rhematization in which quailic congruences are construed between qualities of light and qualities of persons (Calder 2019). Most simply, rhematization entails a slippage from indexical to iconic sign relations in which a contrast of indexes is interpreted as a contrast in depictions (Gal & Irvine 2019:19). As Susan Gal and Judith Irvine have pointed out, axes of differentiation are often reduced by erasure to simple icons in rhematizing processes (ibid:19). Recall Jan's tirade about "Muslim gang members" who, according to him, deliberately darken areas around their places of worship and schooling in order to wage a turf war with impunity. In addition to violence, for Jan the architectural embodiment of Islam, shrouded in darkness, signals a pious encroachment on (ostensibly) secular humanist Danish values: "In ten years' time this church[25] will be a mosque." More cryptically, in Rasmus' account of Mjølnerparken, the 'ghetto' is dark and scary and home to dark people—that is, non-white—and in this ontology—therefore non-Danish.

The reader of this chapter has by now registered that I have spent the better part of it belaboring the point that "uncoziness" (*uhygge*), as an aesthetic regime of value, is

[25] Danish churches typically function as secular community centers rather than places of worship. x% of Danes attended church regularly in 2021. Yet all members of the Danish labor force are required to pay a church tax.

conventionally associated with cool-toned, bright lighting, and that these tones and intensities are taken to index the 'un-Danishness' of the 'non-Western immigrant' social persona. Recall Astrid's discussion of Christianhavners' apprehensions about having colored and/or "too much" light in Copenhagen, which might signal that the city was growing or modernizing "too fast" like London; here an icon of light pollution as well as cosmopolitanism. In Caroline's description of small businesses owned by "Danes with other ethnic backgrounds—Middle Eastern, Arabic," such as a barber shop, kebab shop and kiosk, all of the storefronts are lit with "uncozy" blue light.

What should we make of the seeming paradox that non-ethnic Danes can be apprehended as both too bright and too dark in their alterity? Notice how a wide range of luminous intensities and color temperatures—blue light, bright light; dimness, darkness—are taken as signs of the 'uncoziness' of 'non-Western' Danes, iconizing a quality of menace that appears to inhere in the people themselves. I want to argue here that the uptake of particular qualia of light as constitutively un/Danish illustrates a semiotic ideology in which culture is deployed as a stand-in for race: changing atmospherics are themselves signs of changing demographics. As constellations of affects and values, qualia of coziness may be understood as sedimentations of whiteness. Put differently, an affective attachment to coziness is also an attachment to affordances of whiteness and its specific calibrations of comfort (cf. Hage 1998). Here hygge may be understood as an idiom through which racialized anxieties about the "social sustainability" of majority-white Danish welfare society—and its aesthetic normativities—are often coded in more convivial terms. Let me conclude this discussion by locating it within a phenomenology of whiteness.

White Comfort

In her foundational essay, "A Phenomenology of Whiteness," Sara Ahmed (2007) considers how whiteness, as a collective identity formation, coheres as an orientation to a world gathered in specific ways: it pulls certain things within reach for certain bodies, encompassing not only physical objects, but also styles, capacities, aspirations, techniques, and habits (ibid:154). Bodies positioned proximate to such affordances may feel at home in a world and 'sink' into space, expanding their reach. For Ahmed, built environments acquire the 'skin' of the bodies that inhabit them (cf. Fanon 2008 [1967]), accumulating over time residues of bodily extension. Whiteness is hence an effect of what coheres rather than the origin of coherence (ibid: 157-159).

As critical race theorists have argued (Dyer 1997; Frankenberg 1993), whiteness has long functioned as an unmarked category, saturating a normative surround against which nonwhite others appear as deviant. Yet as a "pigment of the imagination," as George Lipsitz (2018) cleverly puts it, whiteness is only invisible for those capable of reflexively performing it, or those who become conditioned not to notice it, even when they are 'not it' (Ahmed 2004). Spaces orient around whiteness insofar as it masks itself, 'trailing behind' habit worlds as residual intensities. In Ahmed's terms, white bodies comfortably inhabit spaces that extend their dimensions. What's more, "whiteness may function as a form of public comfort *by allowing bodies to extend into spaces that have already taken their shape"* (2007:158, original emphasis). To feel at home in a world is for Ahmed also to "feel a certain comfort: we might only notice comfort as an affect when we lose it" (ibid:158-160).

By trailing ambient intensities cohering across Copenhagen's evolving atmospherics and demographics, in this chapter I have shown how qualities of light are swept up in multivalent

systems of cultural value. Fundamentally, I have considered how the diversification of Denmark is experienced as eroding culturally-configured, embodied modes of what we might call *white comfort*: a disposition so reified and unchallenged that it doesn't require cognizance of its own hegemony. This affective erosion is evidenced in the grafting of racialized anxieties about increasing immigration onto discomforts derived from resource-efficient lighting technologies, and the apparent intrusion of both into habit worlds of hygge. More than an instance of "innovation's" unintended consequences (cf. Suchman 2000), the convergence of a xenophobic discourse with a technophobic one delineates a semiotic ideology operative in mounting concerns about the 'social sustainability' of white comfort in a warming world. More broadly, aesthetic regimes of value coalescing around changing qualities of light in Denmark illuminate imagined threats to a white world order and the extractive social arrangements it sustains. As I have shown, phenomenal qualities of coziness are not given but rather are themselves semiotically achieved and mobilized in nationalist value projects. In Nørrebro, attending to such mobilizations—and their loading with moral and political interest—renders visible the fault lines of the Danish multicultural imagination.

CHAPTER FIVE

EXPERIMENTAL PROTOTYPE CITY OF TOMORROW

> Sustainability can't be like some sort of moral sacrifice or political dilemma or a philanthropical cause. It has to be a design challenge!
>
> —Bjarke Ingels

When the former occupant of the White House withdrew the United States from the Paris Climate Accord in a Rose Garden revelation on June 1, 2017, he employed the revanchist rhetoric of "America First." Yet in rationalizing the departure, the occupant invoked the municipal scale: "I was elected to represent the citizens of Pittsburgh, not Paris," he claimed. As we now know, the citizens of Pittsburgh in fact voted for Secretary Clinton over candidate Trump by a margin of four to one in the 2016 American presidential election; an irony various media were quick to seize on. On the evening of Trump's announcement, Pittsburgh Mayor Bill Peduto took to Twitter to repudiate the President and recommit the city to the terms of the Climate Accord (if only symbolically), adding in a final tweet, "It's now up to cities to lead."

In the absence of a binding international agreement on climate change, is the fate of the planet "now up to cities" to decide? Indeed in many places beyond Pittsburgh, environmental standards rescinded federally have been upheld municipally. In addition to Mayor Peduto, at the time of writing 434 self-styled "Climate Mayors" of U.S. cities have pledged to uphold the parameters of the Paris Accord at a civic scale. More broadly, as the anti-Trump resistance coalesced in urban cores throughout his traumatic term—in the form of climate capitals,

sanctuary cities and theaters of civil disobedience—cities have come to figure centrally in the progressive political imagination.

As planetary urbanization continues apace, the urban form has been positioned as at once cause of and cure for the 'wicked problem' of climate change (cf. Lefebvre 1970; Brenner and Schmid 2015). Beyond the many hot takes and Ted Talks devoted to the redemptive promise of the late industrial city, social theorists have considered the ecological agency of the urban scale as a crucial vector of policy implementation. As Saskia Sassen (2013) has argued, cities are complex, multiscalar ecologies that can accommodate a vast scale of intervention from the sub- to the supra-national; as such they are ostensibly equipped to sidestep international impasse on climate action.

This idea—of urban forms as a geologic force (cf. Haff 2014)—has become enshrined in institutionally choreographed discourses of 'sustainability.' In September 2015, for instance, the United Nations released seventeen Sustainable Development Goals with an eye to 2030, spanning a broad range of social and economic issues related to the changing climate. Goal eleven entreats nation-states to "Make cities and human settlements inclusive, safe, resilient, and sustainable," incorporating within its focus on "sustainable cities and communities" a target to ensure access to safe and affordable housing. Crucially, unlike the Millennium Development Goals that preceded them, the Sustainable Development goals do not distinguish between so-called "developed" and "developing" nations, implicating instead within one framework the 'international community' as a whole. In so doing, they flatten both culpability for and lived experience of climate change, giving a pass to those most responsible in the Global North—or better, the North Atlantic (Trouillot 2002)—and lopsidedly indicting those most vulnerable to its effects in the Global South.

Lucy Suchman has compellingly wondered (2016) if design has now displaced development as a dominant idiom for progressive social change. Both terms can be more precisely described as what Michel-Rolph Trouillot calls "North Atlantic universals" (see chapter one): situated categories that project North Atlantic experience onto a global geography of imagination and management. Here I want to ask: What does it mean that 'sustainable development,' and more recently green design, have become governance projects interpolating cities and their inhabitants as members of a global polity (Halpern et al. 2017: 108)? What does it mean to frame climate change as a problem of urban design? A consensus seems to be forming around a diagnosis for this conceptual development—the staging of the climate change debate in North Atlantic universals—as a "post-political" condition (Swyngedouw 2012; see also Mouffe 1999; Ranciere 2001). This diagnosis would mobilize a particular critique; namely one that consigns a concept of the political to a domain of agonistic relations or an expression of electoral politics. I want to try a different tack here. In this chapter, I route these questions of location and projection through the concept of prototype, and consider some of its claims and affordances as a performative assemblage of material and discursive practices.

Since the announcement of the UN Sustainable Development Goals in 2015, Copenhagen Municipality has reframed its climate policy around goal eleven, opening a Living Lab in May of 2016 dedicated to exporting its model of bright green[1] urbanism globally. During my fieldwork I tracked a few pilot projects situated there, which I'll sketch below.

[1] 'Bright green' environmentalism refers to an ideology grounded in a faith in technological innovation to advance economic growth while minimizing environmental impacts within a capitalist framework. It does not address the structural inequalities of climate change.

Living Lab

"Watch your head!" Thomas warns as I descend the porcelain basin of a double-wide toilet. I emerge in the chamber below in 19th Century Copenhagen, plunged into one of the city's first open sewers. The sewer is styled as a sort of hygienic house of horrors, outfitted with cottonball cobwebs, piles of fake feces and plastic rats strewn about **[*Figures 5.1-5.4*]**. A chipper voice chirps over the PA a brief account of Copenhagen's twin improvements in sewerage infrastructure and public health, and offers instruction in habits of hygiene and waste disposal. Visiting children are invited to reach into a cluster of holes in a dark corridor—as if they were game show contestants—to retrieve hidden remnants of various toiletries that don't belong down there: a toothbrush, a diaper, a wad of cotton swabs, and a plastic rat (for good measure).

The sewer simulation is one among five immersive "learning environments" that stage a series of urban ecosystems at Copenhagen Municipality's Energy & Water Science Center. Housed in a former municipal waterwork in the Valby district, the Science Center has offered educational programming in earth science and environmental stewardship for primary through high-school-aged children in the Danish Capital Region since 1999. I've paid a visit to its lakefront headquarters for an update on a new project launched in the spring of 2017.

Thomas, an employee of the Science Center (and leader of my sewer tour), punctuates his speech with a hearty laugh. "The engineers are no longer gods!" he declares, referring to a pilot project called the Collaboratorium. The project marks the first venture of the Climate Adaptation Living Lab for Greater Copenhagen (CALL), an expansion of the Science Center's pedagogical mandate to an intermediary role between civil society and municipal governance. As its name suggests, the Collaboratorium invites nonspecialist collaboration across conventionally expert domains of scientific knowledge production; in this case, in the collection of geospatial drone

data on local flood damage following extreme weather events. The project serves both to qualify more accurate data and solicit civic participation in the urban planning process, and so, according to Thomas, flatten its technocratic hierarchy.[1]

Copenhagen's 150+-year-old sewerage system lacks the capacity to accommodate torrential rains, which can quickly overflow and inflict ruinous damage. On July 2, 2011, a storm system known as a cloudburst struck the Danish Capital Region and did just that. According to the Danish Meteorological Institute, a downpour which exceeds 15 mm of precipitation in 30 minutes classifies as a cloudburst.[2] The mid-summer cloudburst that struck Northern Sjælland in 2011 dumped 150 mm of rain across Greater Copenhagen over a span of two hours, leaving swathes of the city without power and submerged under a meter of water. The flash flooding that followed swamped the basements of residential and municipal buildings, destroying 18 years of cancer research in the process. It also paralyzed area hospitals and transit infrastructures throughout the following week and triggered an outbreak of a waterborne bacterial infection that claimed the life of a 62-year-old man. The day after, the curbs of Copenhagen were piled high with the musty contents of residents' basements:[3] furniture, clothing, and in some cases family heirlooms. Regional economic damage is estimated at 4.8 billion Danish kroner, a figure that prompted the Swiss Reinsurance Company to declare the Copenhagen cloudburst "the most expensive weather event in Europe."

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[1] Scholars have discussed such participatory planning projects as a 'trojan horse' for gentrification. While I don't disagree with these perspectives, I think that they tend to glide over local social formations as well as broader structural dynamics that have more to tell us about how design thinking shapes social worlds.

[2] Danish meteorologists have characterized the event as the equivalent to double the average precipitation for the month of July in Northern Sjælland.

[3] Basement storage units are common amenities in Copenhagen apartment housing.

Danish urbanists tend to take a different perspective. In Copenhagen, the cloudburst of 2011 is known among civil engineers as *bevillingsregn* (roughly, 'funding rain'): a deluge that literally precipitated the political will and so the financial investment necessary to 'future-proof'[4] the city for an unprecedented scale of climatic vulnerability.[5] Faced with a future in which so-called 100-year pluvial flooding events could become seasonal hazards, the municipal government elected in 2012 to scale up ongoing efforts at urban climate adaptation with a dedicated regional infrastructure plan scaled to a 20-year timeframe. Broadly, the Climate Adaptation Plan outlines a series of upgrades and retrofits of existing sewerage and road infrastructure, as well as diagrams a new network of 'flow routes'—canals and tunnels—that will drain excess stormwater out to the Baltic Sea. The plan further maps out a coordinated emergency response procedure designed to minimize the vulnerability of critical institutions like hospitals. (20)

"This place would not be here without the cloudburst!" says Thomas. "Well, it would still be here but it would mainly be the Science Center, and it would only serve the children of Copenhagen." The Living Lab has translated the Climate Adaptation Plan into a suite of "learning environments" that populate a municipal showroom. Alongside the Science Center's educational workshops, the infrastructure projects outlined in the plan appear as showroom set pieces that stage both the technologies themselves as well as their narrative framing as 'design solutions.' Out front, an interactive cloudburst simulation models climate resilient infrastructures such a skate park that doubles as a detention basin and a dredging road made from permeable

[4] Cloudburst Management Plan 2012, p. 7

[5] Such climatic threats include, to name but a few, sea-level rise and storm surge; more frequent and violent precipitation; urban heat islands; diminished groundwater supply; and further harm to biodiversity and public health.

pavement **[Figure 5.5]**. On the building's roof, a selection of kiosks representing the Danish renewable energy sector feature infographics on wind power, biomass, and district heating systems **[Figures 5.6-5.8]** At the Collaboratorium, a climate modeling room demonstrates the vulnerability of local terrain to storm surge and sea-level rise via 3-D mapping visualization software. Climateways,[6] climate tiles,[7] and infographics about entire climate-resilient neighborhoods are featured throughout. Alongside the primarily educational Science Center, CALL is dedicated to monetizing and exporting these 'design solutions' globally. Thomas hopes to prototype both the technologies themselves as well as the Collaboratorium's participatory planning model, which he describes as a "governance technology." "We would like to see if this model works in other cultural contexts," he told me, starting with China. A China-Denmark 'innovation center' is, at the time of writing, currently underway in Beijing, which will replicate the Living Lab's green tech demonstrations.

In 2018, Copenhagen was selected as a 'guest city' for Beijing Design Week, a sort of contemporary World's Fair for Chinese infrastructure and industrial design. For its contribution to the program, the Technical and Environmental Administration dispatched a delegation of consultants to co-design with local government an urban renewal project in the historic Qinglong Hutong (Alleyway) in central Beijing. A news article in the Beijing Review (2018) describes the 1220-meter street as "dirty" and "run-down" with "nothing more than a few local restaurants and small grocery stores." Citing Danish expertise with historic preservation and green design, the article describes a dramatic transformation of the urban built environment. After being converted

[6] Dredging roads with permeable pavement
[7] Climate tiles, "*Klimaflisen*," are part of a pavement system developed by Tredje Natur Architects to manage rainwater in urban space. Briefly, the perforated tiles create new water circuits by channeling rainwater to the root systems of adjacent plant life.

to a car-free zone, the street is now populated with several triangular gardens, benches, exercise equipment, and a gender-neutral toilet. A tangled web of overhead electrical wires has been relocated underground. In a second phase of the project, some local residents with be 'voluntarily' relocated to public housing, the article claimed.

The Copenhagen (Meta)Narrative

Since its inception in the spring of 2016, CALL has been in the business of sharing what it calls the "Copenhagen Narrative" of green transition (*den grønne omstilling*) with a global audience. International delegations[8] of engineers, politicians and urban planners come to the Living Lab—one among several stops on a typical infrastructure tour itinerary—to study the design and implementation of the city's adaptation strategy. The sewer demonstration is a perennial crowdpleaser; the toilet makes for a favorite goofy photo op among visiting politicians. It is also, crucially, an experiential stage for the story of the city's harbor remediation and 'regeneration' as a leisure and luxury housing waterscape; making sensible via multiple modalities the Copenhagen Narrative of urban optimization. Thomas recently learned that an oversized toilet now flanks the entrance of a municipal waterwork in Kiev. Apparently plans are in the works to build a similar sewer "learning environment" on site that will demonstrate technical solutions to sewerage modernization and storm surge mitigation. Regarding the toilet homage, Thomas chuckled, "It would have been nice if they would have asked! But it's partly ok, because I want the ideas to spread into the world."

Like the unrealized Walt Disney company town, Copenhagen has positioned itself as a 'living blueprint' of a future city, modeling the ingenuity of Danish technoscience and urban

[8] Primarily from East Asia, Northern Europe, and North America.

design. The Municipality has leveraged that blueprint as a lucrative branding strategy, vaulting Copenhagen to the top of metric regimes of "livability" and nabbing the 2014 European Green Capital Award. Troping on the iconography of Danish Modern, the city has branded Copenhagen an "urban living room," a shrewd deflection from its acute shortage of affordable housing. As I outlined in chapter one, the 'urban living room' brand has even spawned its own verb: "to Copenhagenize," which posits its model of 'regeneration' as globally commensurable and scalable. CALL enacts that model as a prototype of climate intervention, but one stop on a typical itinerary for international delegations of architects, urban planners, and politicians. Such itineraries tend to include site visits to an off-shore wind power farm and geothermal district heating plant, as well as guided tours of the city's vast bicycle infrastructure network. It is this last category in which the uptake of prototypical design thinking is most evident: efforts are currently underway to 'Copenhagenize' the transit infrastructures of cities on five continents. A canny marketing firm of the same name has even managed to export the city's mobility culture as a scalable commodity, offering infrastructure tours and consulting services in Danish 'bicycle urbanism' for visiting delegations.

During my fieldwork, I observed several delegations' visits to CALL, as well as guided tours of various climate adapted infrastructures throughout the city. At one such visit in June of 2018, I sat in on a presentation of the Copenhagen Narrative to a group of German politicians and urban planners. Kai, a CALL employee, begins the lecture with an account of the 2011 cloudburst. "This is what a catastrophe in Copenhagen looks like" he says as he thumbs through a sequence of PowerPoint slides stacked with dramatic photographs of half-submerged cars and people wading waist-deep through local streets. "Perhaps this is normal for other parts of the world, but it is unprecedented in Denmark. We have to prepare for more of this in the future:

weather that is warmer, wetter and wilder." Yet the cloudburst catastrophe was also "kind of a blessing," Kai's colleague Liv suggests, because it made legible a "business case" for large-scale investment in climate resilient infrastructure. "We need to *see* and *feel* the consequences of climate change," she adds. Kai cuts to a YouTube clip of a cyclist biking through half a meter of water in a flooded Metro station. A peal of laughter ripples through the audience. Kai admits that Copenhagen's driverless light metro is "actually a rather stupid design," because it will evidently take two years to fully drain in the case of flood.

As the group moves outside to the interactive cloudburst demonstration area, Liv explains that Copenhagen's relative flatness is both an asset and a 'curse': an asset in that makes for ideal cycling conditions; a curse in that the city becomes a giant detention basin for pluvial runoff during incoming storms from the west, as the western suburbs are situated at a higher elevation than the city proper. Moreover, Liv points out that accessible design has become a 'liability' in a warming world: most apartment housing in the Capital Region constructed after 1960 has been designed for barrier-free ground-level entry, which in turn invites runoff water in to flood the ground level and basement during extreme weather events.

Kai flips a switch and a torrent of water gushes from two dark gray 'storm clouds' positioned at the top of a hill **[Figure 5.9]**. A few of the politicians squeal and leap to higher ground as a stream snakes through the city road simulacrum and a small geyser bursts through a sewer grate **[Figure 5.10]**. The group gets busy attempting to dam up the ground level of a one-quarter-scale four-story apartment building with small sandbags **[Figure 5.11]**. As they explore the terrain of the cloudburst learning environment, the civil engineers snap photos of the various resiliency technologies on display.

"Now we'll go down to the hostage tank," Kai deadpans. By 'hostage tank' he means the facility's sea level rise visualization room, which is a key teaching aid in the Municipality's Climate Ambassadors program, an ecosystem science and environmental stewardship education module for school-aged children. A civic outreach plank of the Climate Adaptation Plan, the program seeks to train "a new generation of climate-wise Copenhageners." Kai jokes, "It's a form of brainwashing. You have to get them when they're young, before it's too late." CALL uses the same visualization technology in its programming for visiting delegations.

The lights dim in the demonstration room and a 3D geospatial model of the Capital Region lights up in neon blues and greens **[Figure 5.12]**. At neighborhood-scale detail, the model illustrates projected impacts of global sea level rise at 25 centimeters, then 50, 100, 200, 500. The group watches silently as blue creeps over the landmass until the entire island of Amager is submerged.

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After lunch at an Indian restaurant in Vesterbro, a Finnish delegation boards a bus for a quick field trip. I sit next to Hilda, a fortysomething landscape architect, and we chitchat about her group's morning at CALL. She foresees some challenges of translation in applying the Copenhagen model of green transition to her home city of Helsinki. For the first, Finland's subarctic climate doesn't lend itself well to bicycle mobility. Second, the political climate is much different from the Danish one, as Hilda explains that it is difficult to persuade politicians and stakeholders to invest in environmental causes. Danish aesthetics, however, might be an easier sell. "I just read a book on *hygge*," Hilda says (see chapter four). "The Danes are good at enjoying the small things in life. Like the roses over there—" she points out the bus window to an apartment entrance framed by climbing roses. "They're just lovely. You know, in Finland we

also have these long, dark winters. It's so easy to just stay inside on a dark day and sit at the computer. I think the Danes are on to something with *hygge*." "Like a sort of antidote to the winter blues?" I ask. "Yeah, like that."

We get a preview of our destination en route. Along the storefront of an Østerbro discount supermarket, architectural renderings of handsomely landscaped local parks stretch the full length of the windows **[Figures 5.13, 5.14]**. A few blocks further we reach Tåsinge Plads, the first climate-adapted urban space in Copenhagen, designed by Tredje Natur Architects and completed in 2014. The square is part of a district-wide, multi-year project to transform the neighborhood of Østerbro into a '*klimakvarter,'* or (roughly) 'climate quarter' adapted to withstand cloudbursts and other extreme weather events. Briefly, the system operates via an intricate network of drainpipes, landscaped channels and subterranean catchment tanks. Visitors to the park can pump purified water from the tanks through sculptural forms in the center of the square **[Figure 5.15]** and use the water to cool off or for children's play, for example. The plaza terrain tilts to the east, so runoff water is channeled into a 'rainforest'—a patch of vegetation positioned over a retention basin **[Figure 5.16]**.

As the Finns wander through Tåsinge Plads, snapping photos and conferring with one another, Kai rehearses for the group the Copenhagen Narrative of crisis, resilience and ingenuity:

> We can see with our own eyes that the climate is changing, and we can only expect more extreme storms like the ones we have seen in Copenhagen in the future. But we choose to view rainfall as a resource, rather than a problem.
>
> As you know, we missed the opportunity in the '70s to convert our combined sewer system. So at this point it would be way too expensive to change it. So we've chosen instead to invest in new solutions that come with the co-benefits of making our urban spaces greener and a better place to stay and relax in. And more fun!

Some of the 'co-benefits' of climate adaptation that Kai points to are concrete, like landscaping that doubles as traffic calming infrastructure and meteorological improvements to microclimate. Others are more abstract, like 'healthy aging.' The water pump sculptures are designed for playful interaction among users of all ages, he explains.

Kai closes the tour with a warning about the danger of short-sightedness in urban planning. "Learn from Copenhagen's mistakes," he urges, referring to the designs of both the sewer system as well as the Metro. "Now go home and future-proof Helsinki!"

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Ageless City

In the Municipality's Climate Adaptation Plan, the mythological temporalization of a 'future-proof' Copenhagen ostensibly refers to a built environment fortified against the real-time effects of climate change. When considered alongside the city's shifting demographics, it invites a different reading.

Just a few decades ago, aging Danes could regularly be seen sitting on Copenhagen's park benches, walking along the lakes, or patronizing the city's many libraries and museums. These folks were pensioners, widows and widowers; people living in care homes, with grown children or on their own. Yet today older people are a rarer sight in the city, so much so that their conspicuous absence prompted a 2018 article in center-left national newspaper *Politiken* entitled, "Copenhagen has become a city without the elderly." The city's increasing monographics are no accident; they are namely direct consequences of the financialized planning model inaugurated in the early 1990s. As I outlined in chapter two, the influx of families with children and other 'productive' taxpayers in the decades that followed pushed up housing prices which in turn

pushed out aging Danes, many of whom live on fixed incomes (called a *folkpension*). Since 1993 (the year the city narrowly skirted bankruptcy), the number of people aged 75-90 living in Copenhagen has contracted by more than one-half, while all cohorts up to age 70 have increased (Danmarks Statistik). Moreover, the city's public space has become increasingly parochialized, addressing narrower demographics via hyper-programmed infrastructure designed to encourage physical activity and sensory stimulation. Francesca, a care worker at Kastanjehusene, where I volunteered with Cycling Without Age, characterized the transformation of Copenhagen's built environment in this way:

> Copenhagen has really done something for the outdoor spaces. It does not take many sunbeams before we sit half-naked outside and enjoy it. And there is hardly a weekend without a half-marathon. Which is good. It just does not seem that the elderly has been considered. That is why initiatives like Cycling Without Age are so important—so that elders can feel like they participate in city life again.

As architect Bianca Hermensen (2014) has shown in her research in Danish care homes, in recent years the proliferation of outdoor events staged in Copenhagen, such as street fairs, common dinners (*folkekøkkener*) and concerts, is a significant factor in keeping aging Danes indoors. Such events can cause sensory overload for older as well as neuroatypical folk, which can in turn exacerbate loneliness and isolation. Moreover, the commercialization of the city's public space has hit aging people particularly hard in that the sidewalk cafés and outdoor festivals of Copenhagen's 'urban living room' are only accessible for able-bodied contingents with the means to afford them. What's more, as the Municipality shifts much of its programming and communications to web-based apps and social media, digital literacy—unevenly represented in older populations—presents yet another bar of entry to the social and cultural life of the city. As

architect Deane Simpson (2015) argues, in the early 21st Century the Danish capital increasingly resembles a "utopia of youthfulness" predicated on the invisibility of the aged.

Nationally as well as regionally, Copenhagen is an outlier among demographic trends that point to increasingly aged metropolitan populations as life expectancies lengthen and urban migration increases among Northern European retirees (Thorsen 2018). To be sure, the causes of this deviation are complex, but what I want to focus on here is what it can tell us about how an ageless future city is being imagined and enacted, as well as what the staging of that urban future as prototypical portends for collective future-making on a warming planet.

EPCOT

What does it mean to "Copenhagenize" an urban form, and how does a 'future-proof' built environment fortify the social contract of the city? In this section, I consider some claims and affordances of the prototype as a performative artifact.

The prototype and its logics of experimentation, collaboration, and innovation capture a trio of buzzwords exemplary of Silicon Valley design thinking solutionism. The rise of this kind of design thinking is evident across disparate domains, perhaps most visibly in software development (Suchman et al. 2002) but also within education (Tompkins 2016), urban planning (Halpern 2017), and indeed the discipline of anthropology (Marcus & Murphy 2011), to name just a few. To be sure, a concern for iterative practices of assembly taps into current anthropological interest in the materiality of politics, resonant across social studies of science (Mol & Law 2002), anthropologies of information technology (Kelty 1998; Trigg & Blomberg 2002), and ethnographies of design (Jain 2006; Murphy 2015). Such studies have theorized the prototype as both an artifact and an epistemic form that remains in perpetual 'beta mode' such

that optimization itself can be further optimized *ad infinitum* (Halpern et al. 2017: 118-119). The prototype thus embodies a fundamental paradox: it is at once a provisional template and an ostensibly limitless field of iterative potential. It is, in Alberto Corsin Jimenez's (2014:383) elegant phrasing, "more than many and less than one."

Lucy Suchman and colleagues (2002) offer a fundamental framework for thinking with the figure of the prototype. In their ethnographic study of information technology design at Xerox PARC in Palo Alto, California, Suchman et al. attend to ongoing practices of assembly, demonstration and performance in software development. In this context, they argue, technical prototypes are performative artifacts that cohere as contingent alignments of material and discursive practices. Yet these contingencies are often deliberately obscured in professional talk about finished products (ibid:175). "Statements of what users need or what a system should do," they write, "are characterized by the kind of 'specific vagueness' (Garfinkel 1996) that holds for any formulation apart from its practical elaboration *in situ*." A performative account of prototyping as a contingent process of alignment among multiple, discontinuous social worlds parses out the specificity of that vagueness, illuminating "the achieved nature of objective singularities" (ibid:164). Viewed in this way, prototypes are dynamic assemblages of "interests, fantasies and practical actions," out of which new configurations arise (ibid: 164).

Prototypes also embody a dual meaning, referring to both making and testing as well as normative modeling. As Silvia Lindtner has pointed out (2020:4), the idea that a region or even a nation could function both as a prototype—modeling a new way of life—and as an archetype—making certain futures felt and concrete—is of course not new. As post- and de-colonial scholars have widely demonstrated (Ahmed 2016; Escobar 2015; Sweidan & Escobedo Sibrian 2020), prototyping is a basic logic of colonialism, discursively constructed around a radically other

"Third World" in need of 'modernization' and 'development.' What's more, the prototypical logics of the 'civilizing mission' served to rationalize the exploitive and extractive projects that the North Atlantic undertook in the service of its own progress narrative. Today these logics have been refashioned in the sanguine register of design thinking solutionism. As Lindtner argues in her ethnography of entrepreneurial maker spaces in Shenzen:

> The colonial project of prototyping a certain way of life (and demanding that others model themselves after that particular image) endures through the ideals and practices of technology innovation. It lives on in the construal of Silicon Valley's methods, instruments, and ideas of technology design and engineering as universally applicable" (ibid:5).

One of the critical tasks of social theory today, Ann Stoler has suggested, is to investigate how imperial formations are retooled and remade in ways that are "often opaque and oblique, seemingly indiscernible and escaping scrutiny" (2016:5). As I have shown, in the ideological project of Copenhagenization, the colonial logics of prototyping persist across various categories of social difference, and not so obliquely. But I want to stress that this retooling should not simply be understood as an instance of cultural imperialism (Said 1993), or as yet another shade of bright green capitalism. As a new alignment of evolutionary thought with Danish design, the urban living room becomes, as Suchman and colleagues write, "both localized and able to travel, stable and reconfigurable, intelligibly familiar, and recognizably new" (2002:164). The local social contingencies of this new alignment—its economic, historical and political conditions of possibility—are flattened and refashioned as a transposable trajectory from us to them, to a new us.

The practices of prototyping that I have sketched here align a model of carbon neutrality and disaster preparedness with a new kind of green politics, one that is simultaneously progressive and reactionary in its future orientation. As I have argued across this dissertation,

green design descends from the evolutionary epistemologies of Lamarckian eugenics, which in their theories of environmental-genetic interaction offered a pseudo-scientific foundation for the genocidal ideology of human perfectibility and the logics of racial difference. Michelle Murphy has shown how in the early 20th Century a technocratic ethos was applied to such theories, marking the category of reproduction as a "living difference engine" of racial hierarchy that could be rationally managed by technoscience (2017:32). Green design in Denmark today embodies this technocratic ethos, intensifying the spatial sorting of 'unproductive' social types of various kinds. Like the exhibitions of the Copenhagen Cabinetmakers' Guild at midcentury, the city—itself staged as a showroom—artfully arranges design 'solutions' to social problems ironically thematized as icons of domesticity. Yet the scale of the 'wicked problem' of a warming world extends beyond the bourgeois domestic interior. As a performative artifact, the Danish prototype stages an interactive mockup of a fully optimizable urban future, from climate-adapted districts and the green transit systems connecting them right up to and including perfected people. In this 'future-proof' built environment, human inhabitants appear as design objects themselves, physically molded and spatially sorted via a reproductive geography of imagination and management (Trouillot 2002). This model human is one that doesn't require accessible accommodations, affordable housing, or even a stable climate. In short, she doesn't require a livable world—just more living room.

EPILOGUE

SOCIAL SUSTAINABILITY

THE PARALLEL SOCIETY IS CHRISTIANSBORG,[1] NOT MJØLNERPARKEN.

Mohammed Aslam held a poster board sign printed with these words in front of his chest, as if it were a shield **[Figure 6.1]**. The sign's message is a clever bit of reverse discourse, turning on its head a racially charged term deployed to malign so-called "new Danes," and specifically Muslim communities, for a perceived rejection of 'Western' social norms and liberal ideals. On March 1, 2018, Aslam, Mjølnerparken's housing association chair, had peacefully assembled with some 80 or so others to protest the announcement of the then-conservative coalition government's so-called "Ghetto Plan," a sweeping policy directive that weaponizes green design as an instrument of welfare nationalism. At a press conference held in its community center that afternoon, Mjølnerparken (see chapter three), a social housing complex in outer Nørrebro, became the policy's public face.

In the policy, which then-Prime Minister Lars Løkke Rasmussen unveiled at the press conference, the Danish Ministry of Transport and Housing designates as 'ghettos' 27 residential zones across Denmark based on criteria such as educational attainment, employment rate, crime rate, and—crucially—a population of 50% 'non-Western' ethnicity. The plan, fully titled "One Denmark Without Parallel Societies: No Ghettos in 2030," comprises 22 initiatives to "integrate the ghettos." These include, among others, double punishment for certain crimes within certain borders; stricter conditions for social welfare benefits; mandatory Danish-language daycare for

[1] Christiansborg is the seat of the Danish Parliament (*Folketinget*), situated on the islet of Slotsholmen in central Copenhagen.

young children; and the demolition or redevelopment and privatization of social housing cooperatives.

Mjølnerparken is first on the docket for redevelopment. Slated to break ground sometime in 2022, the project will adhere to Copenhagen Municipality's design guide for *social sustainability*, published in 2018 by the Technical and Environmental Administration. In a series of sketches linking civic virtues to green design 'solutions,' the guide enlists architectural elements as agents of radical environmental determinism: climate-adapted common gardens cultivate resilient communities; abundant LED street lighting deters potential troublemakers; a bicycle bypass links roads and residents with Greater Copenhagen **[Figures 6.2-6.5]**. In addition to physically transforming the built environment, the design plan aims to upgrade the widely circulating image of Mjølnerparken as a troubled area by 'upgrading' its population. To reshuffle the area's 'social mix,' the Municipality will financially incentivize the relocation of 'non-Western' residents and sell at market rate new, expanded rooftop garden units, presumably to white ethnic Danes.

What does it mean to weaponize green design as a reactionary way of worldmaking? As I have argued across this dissertation, green design is capacious enough to accommodate all kinds of ideological projects, including eugenic ones. While the evolutionary and reformist logics that animate its aesthetics are not new, their lamination onto welfare chauvinist projects of racial capitalism warrants further scrutiny. In the age of what some are calling the Anthropocene, it seems to me that 'social sustainability' is poised to succeed multiculturalism as a hegemonic liberal ideology. More broadly, I share Lucy Suchman's (2018) concern that design has displaced development as a dominant idiom for progressive social change; or in Michel-Rolph Trouilot's

terms (2002), as a North Atlantic universal. As committed skeptics of universals, anthropologists—and especially design anthropologists—might take note.

On the topic of universals, I'd like to wrap up this discussion by advancing one final argument. In the introduction to this dissertation, I touched on a set of tendencies in professional design discourse that historically have advanced hegemonic claims to, as Suchman (2018) puts it, "adjudicate the question of whose knowledges are relevant" to the project of collective future-making. In its registers of grandiosity, progressivism and parochialism, it seems to me that green design is positioned to inherit the mantle of Universal Design, a late 20th Century paradigm aimed at creating built environments that are accessible for both disabled and nondisabled users. As critical access theorist Aimi Hamraie (2017) has pointed out, the commonsensical notion that the world should be designed with all of us in mind belies the ways in which whiteness, gender normativity and class privilege have historically intersected to render the noncompliant body legible as an object of scientific knowledge. New alignments of green design with the critical access project of 'crip technoscience' could point to alternative environmental futures that challenge those unmarked normativities. As Hamraie suggests, strategies of epistemic activism grounded in crip practices of knowing-making pluralize the figure of the user by centering the experiences of disabled people as designers. To expand the universe of who counts as a designer is also to expand the universe of who counts as "everyone" and whose knowledge matters.

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FIGURES 1.1-1.4

Figure 1.1: Vester Voldgade, 2018

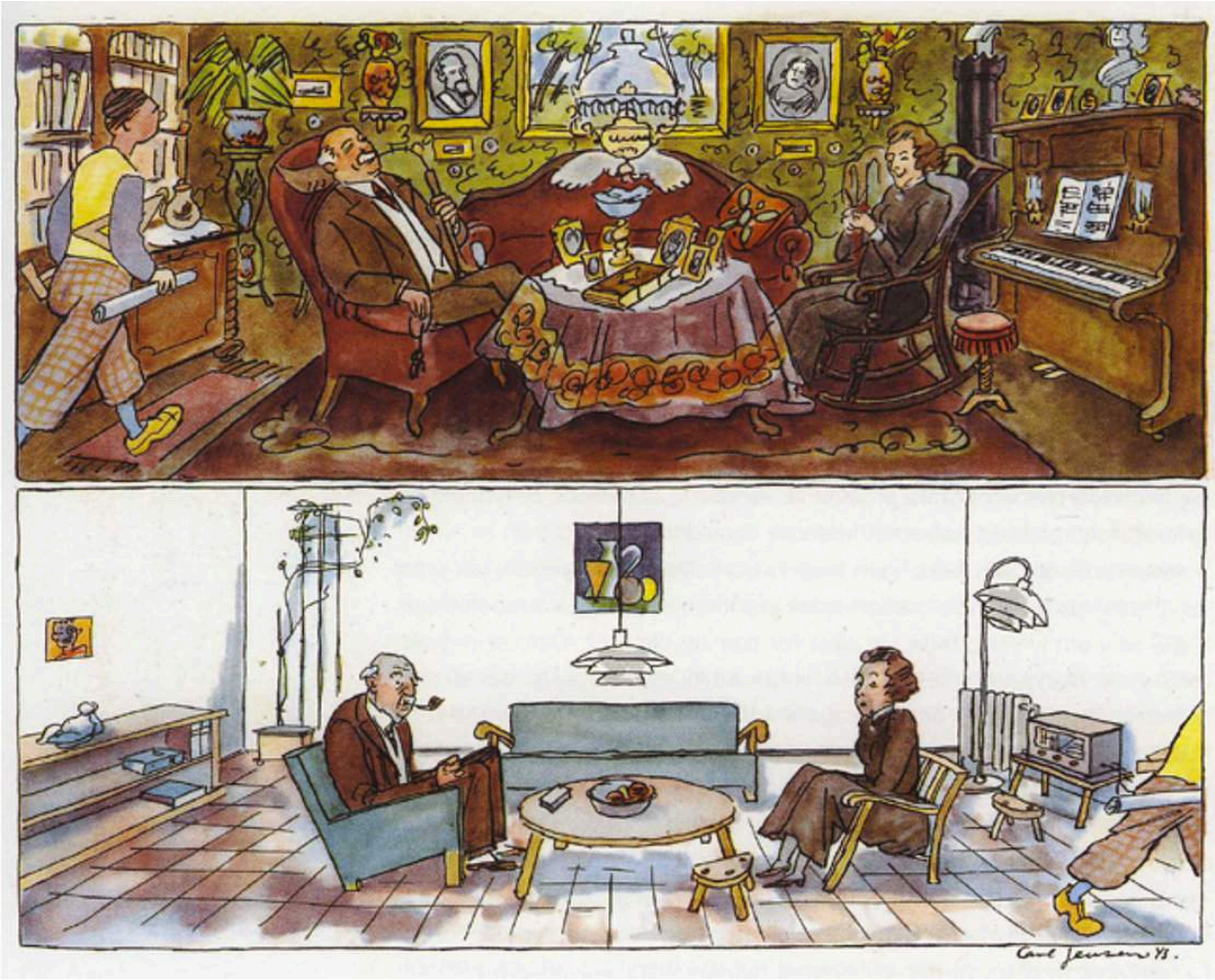

Figure 1.2: Cartoon by Carl Jensen, "An Architect Went Through the Room," 1943
Image **c**ourtesy of Designmuseum Danmark

Figure 1.3: Hans Wegner's Round Chair (also known as the Kennedy Chair, nicknamed for its use in the televised 1960 American Presidential debate)

Figure 1.4: View of new student dorm in Nørrebro

FIGURES 2.1-2.3

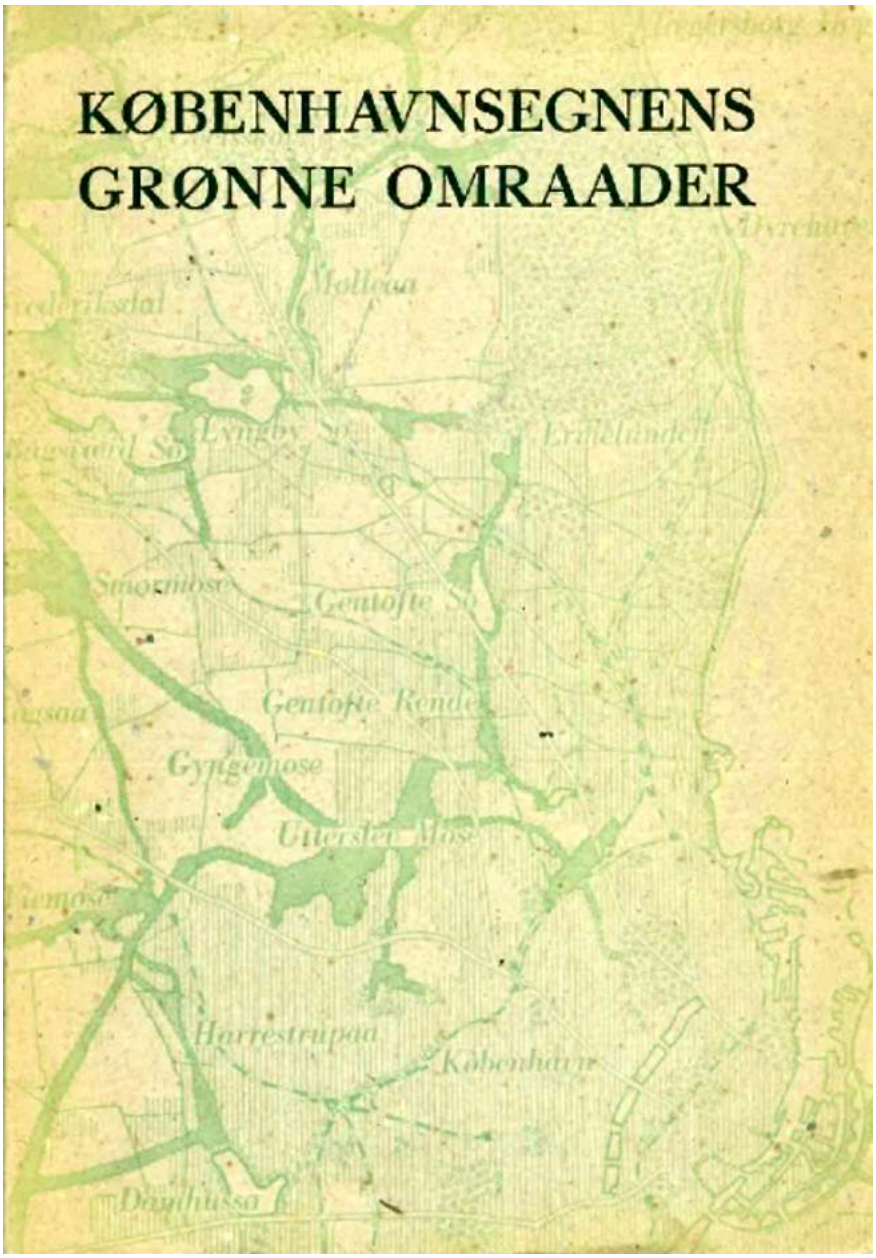

Figure 2.1: Den Grønne Betænkning, 1936 (The Green Paradigm)

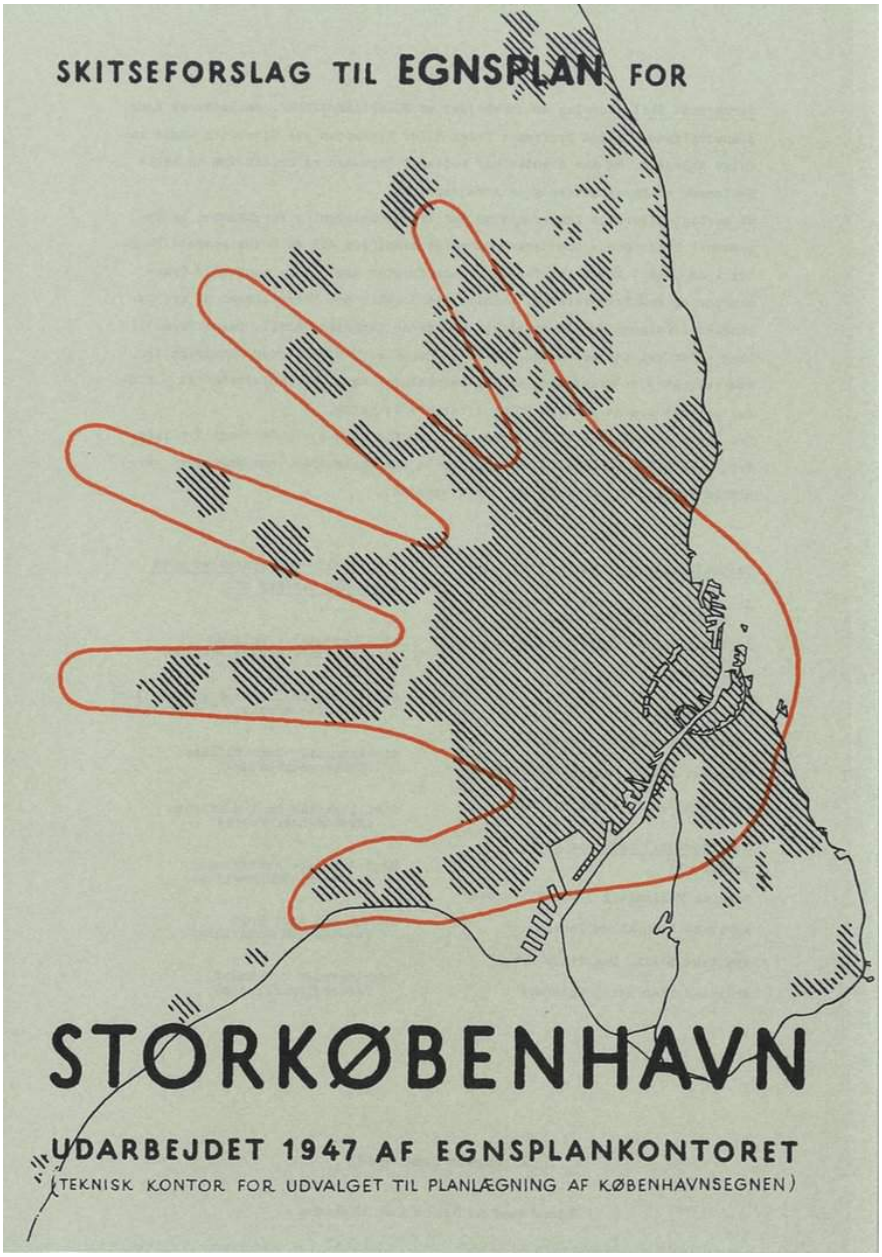

Figure 2.2: Fingerplanen, 1947

Figure 2.3: Islands Brygge harbor bath
Photo credit: Thorkild Jensen

FIGURES 3.1-3.4

Figure 3.1: Cykelslangen
Photo credit: Dissing + Weitling Architects

Figure 3.2: Superkilen
Photo credit: Bjarke Ingels Group

Figure 3.3: Superkilen
Photo credit: Bjarke Ingels Group

Figure 3.4: Superkilen
Photo credit: Bjarke Ingels Group

FIGURES 4.1-4.12

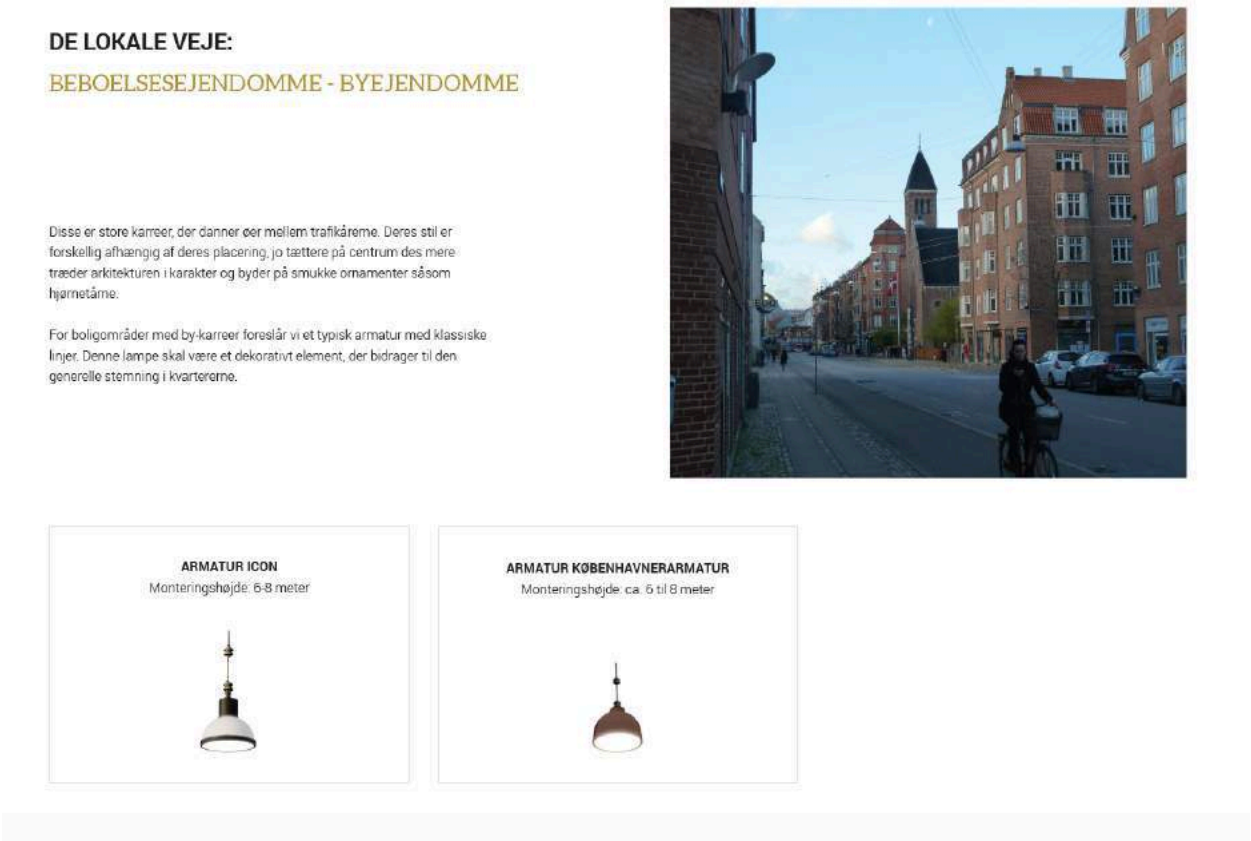

Figure 4.1: Street lighting prototypes
Image credit: Lighting Master Plan, Copenhagen Municipality

Figure 4.2: Street lighting prototypes
Image credit: Lighting Master Plan, Copenhagen Municipality

Figure 4.3: Historic streetlamp
Image credit: Copenhagen Municipality

Figure 4.4: Otto Kæzner's Københavner lampe, 1977

Figure 4.5: Kæzner's lamp rewired and hung in private residence

Figure 4.6: Matilde's building facade

Figure 4.7: Matilde's bedroom

Figure 4.8: Matilde's living room

Figure 4.9: Golden Touch barber shop/Burgerklubben, 2018

Figure 4.10: Griffenfeldsgade, 2019

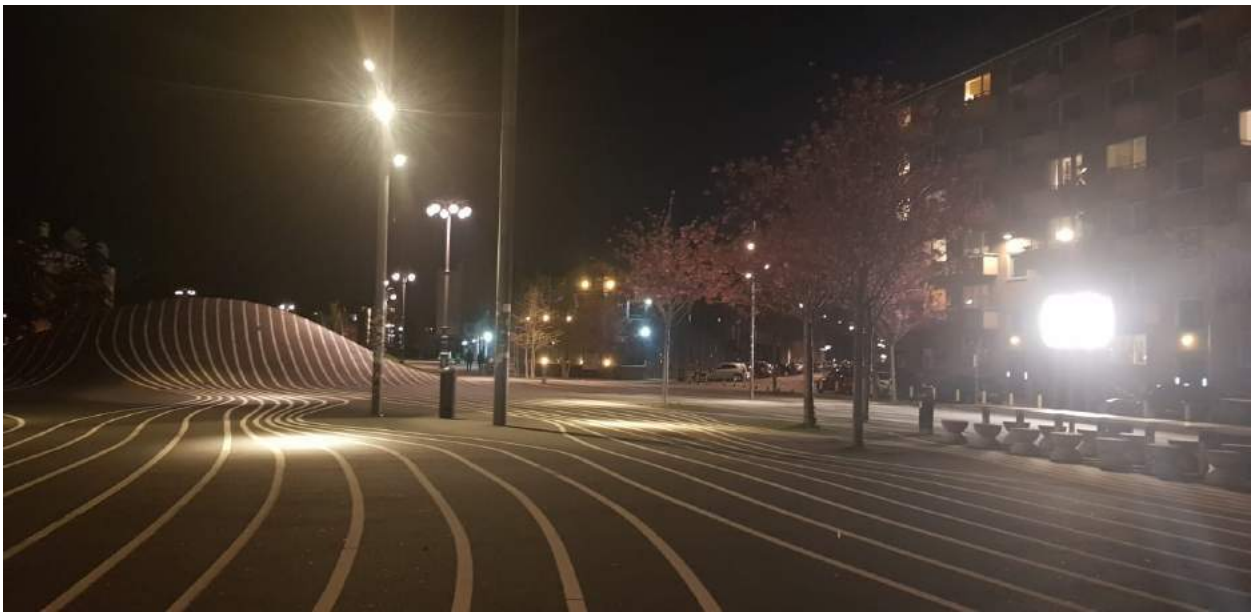

Figure 4.11: Den Sorte Plads, Superkilen, 2021

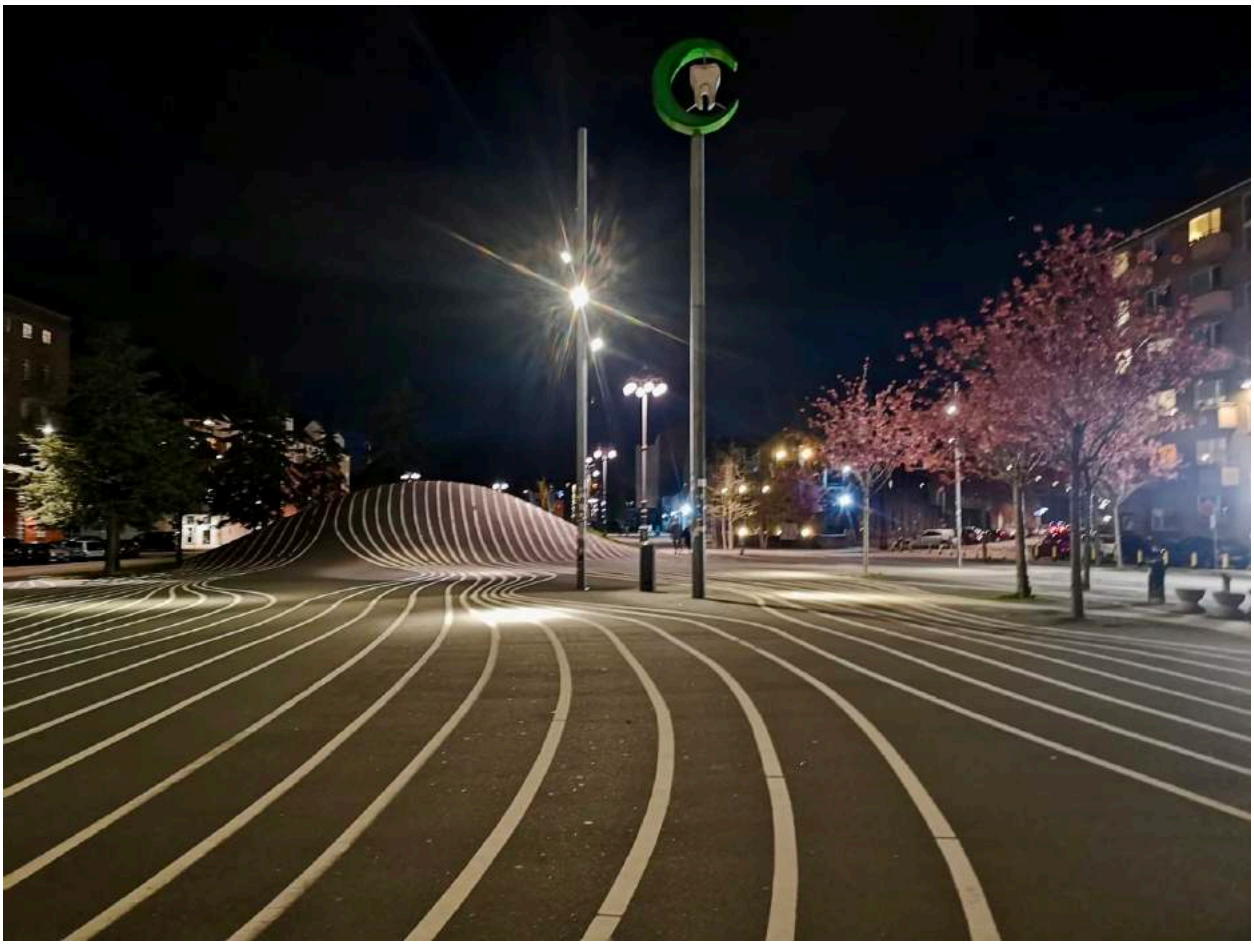

Figure 4.12: Den Sorte Plads, Superkilen, 2021

FIGURES 5.1-5.16

Figure 5.1: Sewer learning environment, CALL, 2018

Figure 5.2: Sewer learning environment, CALL, 2018

Figure 5.3: Sewer learning environment, CALL, 2018

Figure 5.4: Sewer learning environment, CALL, 2018

Figure 5.5: Cloudburst demonstration area, CALL, 2018

Figure 5.6: Climate Adaptation Living Lab, 2018

Figure 5.7: Climate Adaptation Living Lab, 2018

Figure 5.8: Climate Adaptation Living Lab, 2018

Figure 5.9: Cloudburst demonstration area, CALL, 2018

Figure 5.10: Cloudburst demonstration area, CALL, 2018

Figure 5.11: Cloudburst demonstration area, CALL, 2018

Figure 5.12: Climate modeling room, CALL, 2018

Figure 5.13: Klimakvarter advertisement, Østerbro, 2018

Figure 5.14: Klimakvarter advertisement, Østerbro, 2018

Figure 5.15: Tåsinge Plads, Østerbro, 2018

Figure 5.16: Tåsinge Plads, Østerbro, 2018

FIGURES 6.1-6.5

Figure 6.1: Mohammed Aslam, Nørrebro, 2018

Figure 6.2: Mjølnerparken before redevelopment
Image credit: Copenhagen Municipality

Figure 6.3: Rendering of Mjølnerparken's proposed redevelopment
Image credit: Copenhagen Municipality

Figure 6.4: Mjølnerparken before redevelopment
Image credit: Copenhagen Municipality

Figure 6.5: Rendering of Mjølnerparken's proposed redevelopment
Image credit: Copenhagen Municipality