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Cycling Lungs: Understanding Mobile Subjectivity as Enfleshed

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Abstract: Scholarship and advocacy on mobility justice needs to attend carefully to how presumptions about mobile embodiment are reproduced. This paper critically assesses some of the presumptions about the mobile subject within cycling interventions that focus on behaviour and infrastructural change. Bringing material and Black feminist theory together with ethnographic fieldwork on urban cycling in Los Angeles in 2014–2015, I suggest mobile subjectivity can be understood through the process of *enfleshment*, rather than centring on individualised cycling embodiment. Imagined through the cycling lungs, enfleshment allows for a mobile subjectivity that is inherently exposed in highly uneven ways; configured through matter and meaning; and a materialisation of relations of power distributed across space and time. Thinking with enfleshment contributes to cycling advocacy, mobility justice and geographical theory on the body by shifting how mobile subjects are understood and how difference, justice and the politics of the street are imagined and practised.

Keywords: feminism, difference, cycling, flesh, mobility, body

> Where is the human body if it is viewed from within the lung? (Povinelli 2016:42)

Towns and cities around the world are looking towards cycling to help tackle "crises" associated with climate change, urban land-use, air pollution, affordable mobility, social cohesion, and increasingly sedentary lives. Since the COVID-19 pandemic, many cities have allocated more space for active travel. In this paper, I argue that advocacy and research on mobilities such as cycling need to question dominant presumptions about the mobile subject if they are to disrupt prevailing neoliberal, white supremacist, disablist, gendered and ageist hierarchies of value and relations of power. I take Povinelli's (2016:42) question, above, as a provocation to rethink embodiment through the figure of cycling lungs, and argue for an understanding of mobile subjectivity as enfleshed.

This paper experiments with practising feminist theory through a topic more commonly seen as the purview of policy studies or the social sciences. I draw on ethnographic research carried out in LA in 2014–2015 to critically assess the presumptions about embodiment that commonly occur within cycling advocacy and research that focuses on behaviour change and infrastructure. I use the cycling lungs as both metaphor and empirical case study and think alongside material feminist and Black feminist theorisation of subjectivity to reconceptualise cycling

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bodies, street space and mobility justice (Ferreira da Silva 2016; Spillers 1987; Weheliye 2014). I argue that the concept of *enfleshment* shifts focus away from individualised, bounded understandings of bodies as either biological or symbolic towards mobile subjects that are: (a) inherently exposed; (b) materialisations of power across multiple space-times; and (c) actively configured through matter and meaning (Barad 2010).

In the first section, I situate my arguments within theoretical approaches to power and embodiment in mobility, before introducing the concept of enfleshment and its unsettling of presumptions around embodiment. In the second section, I outline my methodological approach to cycling in Los Angeles as theory-in-practice. The third section works through (the metaphor of) the lungs and LA-based examples of behavioural and infrastructural interventions aiming to enhance cycling safety and inclusivity, outlining how these reproduce dominant liberal, possessive-individualised conceptions of embodiment. Finally, I think through the lungs and breath, drawing on cycling activisms in LA to consider how understanding mobile subjectivity as enfleshed opens avenues for radical mobility justice.

Theorising Mobile Embodiment

Mobility scholars have critiqued dominant transport planning approaches for constructing and reproducing infrastructures and practices around the presumed norm of a solitary, individualised, rational, efficient, utility-maximising, able-bodied mobile subject (Doughty and Murray 2016). The driver is often seen to epitomise this mobile subject and street uses that do not include driving or being mobile are routinely othered (Manderscheid 2016). Transport and planning research which relies on economics or behavioural science tends to understand the mobile subject as categorised by road user, segmented by demographics, and individualised as a consumer making rational mobility choices, primarily to reduce travel time or cost (Doughty and Murray 2016). For Schwanen (2020), drawing on the work of Sylvia Wynter, these paradigms within transport research maintain a view of the mobile subject as *Homo economicus* or *Homo psychologicus*.

Beyond the driver, mobilities research has considered mobile subjects and embodiments from female hobos (Cresswell 1999) and passengers in airports (Adey 2009) to cyclists (Lugo 2013). This work emphasises the social and cultural values, meanings and relations of power which construct subjects as mobile and immobile (Frello 2008), as "normal" or "other", valued, dehumanised or criminalised in their (im)mobility. In Cresswell's (1999:176) work, embodiment is understood as "the process whereby the individual body is connected into larger networks of meaning at a variety of scales". This understanding of embodiment—in which social categories such as gender or race, discourses of neoliberal mobile subjectivity (Spinney 2016), and the meanings of mobility (Frello 2008) become wrought into the movements, rhythms and experiences of the mobile body—is prevalent in mobilities studies.

In response to this focus on discourse, research drawing on nonrepresentational and material feminist theory has argued for a wider understanding of politics and

more emphasis on material practices, performances and forces involved in mobility (Bissell 2016). Drawing on material feminisms, for example, Boyer and Spinney (2016) and Clement and Waitt (2017) discuss embodiment in mothering-on-the-move as a process of "becoming mother" through both the discourses and materialities of mobility. In nonrepresentational theory, the "macropolitics" of social categories and discourse is eschewed for a focus on affective atmospheres, assemblages, rhythms and micropolitics. These theorisations allow for an understanding of embodied relating, movement and sociality that occur below the level of discourse and cognition (Bissell 2010). Drawing on Deleuze and Guattari (1987), these theorisations liberate us from understanding bodies as individualised, rational, and determined by social construction, and shift theorisation of bodies from what they *are* to the potentialities of what bodies *can do* (Bissell 2010). However, discussions of embodied differences such as race and gender risk being side-lined in these theorisations, when these are understood as attached to representational, rigid forms of identity and totalising forms of power. There is recognition within non-representational theory that the micro- are entangled with the molar, discursive, macro-politics of structures and identity (Merriman 2019). However, the emphasis tends to be on the liberational potentials of micropolitics, making it possible to construct theories of embodiment that exclude race, gender and disability.

In the section below, I question the supposed distinction between theory that focuses on the micro body and that which focuses on the macro structures of power and mobility governance (Bærenholdt 2013; Manderscheid 2013), instead viewing these as inextricably intertwined (Davidson 2021; Johansson and Liou 2017). I build on some of the work discussed above, while centring alternative understandings of difference. Since Sheller (2015:16) highlighted a lack of research on embodied difference, mobility and power, recent scholarship on mobility and justice (Davidson 2021; Sheller 2018; Verlinghieri and Schwanen 2020) has outlined how mobility can be enrolled in producing neoliberal, gentrifying and modernist visions of urbanity and reiterate gendered, disabling and racialised spaces, mobilities and relations of power (Avila 2014a; Golub et al. 2016; Hoffman and Lugo 2014; Koglin 2017; Lee 2015; Spinney 2016; Stehlin 2015), just as it can offer potential openings to practice non-utilitarian, playful and more equitable mobilities (Castañeda 2019; Lugo 2013).

Below, I build on work that recognises uneven mobility rooted within heteropatriarchal racial capitalism (Sheller 2018). However, rather than focus solely on uneven experiences of (cycling) mobility in Los Angeles, I argue that it is necessary to disrupt the concept of the mobile embodied subject presumed and fostered through mobility practices, advocacy, scholarship and law. This dominant concept of the embodied cycling subject reproduces racialised, gendered and neoliberal presumptions of what it means to be human. Within dominant liberal (Western and state-sanctioned) understandings, mobility justice is sought for othered bodies through redress, redistribution, recognition, or inclusion into self-determined modern subjecthood (Stein 2018) and desired forms of mobility, health and wellbeing are tied to (economic) growth (Schwanen 2020). These conceptions seek inclusion for the other into liberal subjecthood, without questioning the injustice and violence actively reproduced through state-sanctioned

racial capitalism (Pulido 2016). Instead, drawing on Black feminisms, I argue that understanding cycling subjectivity as *enfleshed* allows for transformative concepts of justice (Ferreira da Silva 2017).

Theorising Cycling through the Figure of the Lungs and the Concept of Enfleshment: Exposure, Configuration, and Materialisation of Power

> What if, instead of the Ordered World, we imaged each existant (human and more-than-human) not as separate forms relating through the mediation of forces, but rather as singular expressions of each and every other existant as well as of the entangled whole in/as which they exist? (Ferreira da Silva 2016:63)

The notion of enfleshment shifts away from a focus on individuated bodies, bounded by skin, delimited in space and time and categorised by identity or mode of mobility. Specifically, enfleshment allows for understanding mobile subjects: as inherently *exposed* and entangled (with other humans/more-than-humans); as actively *configured* through both matter and meaning; and as a *materialisation* of relations of power across multiple space-times. I focus on enfleshment to disrupt dominant conceptions of embodiment embedded and reproduced within transport research (Schwanen 2020) and in dominant cycling practices and advocacy. This dominant conception is based on a Western liberal understanding of the modern subject rooted in racial hierarchies and coloniality, where the body is understood as a "deracinated", degendered blank slate (Weheliye 2014), reducible to the biological (McKittrick 2015a). The supposed rational and individuated subject is seen as bounded in space and linear time (Ferreira da Silva 2016) and assigned juridical rights to freedom and self-determination by the state (Ferreira da Silva 2017). Enfleshment speaks both to the fundamental racialised foundations of who is counted as a human body, and to other ways of imagining and living humanness (Weheliye 2014:43).

I focus on the cycling lungs and breath as both a metaphor—or figure (Haraway 1997)—to theorise enfleshment and an empirical manifestation of cycling's uneven exposures, configurations and materialisations of power. The lungs, as a highly permeable surface area of 20−80 square metres (Hasleton 1972) supposedly inside our bodies, speak to *exposure* by questioning the inside/outside boundary separating human bodies from materialities and ideas supposedly on the outside. The lungs speak also to a bodily ontology in excess of cognition or sensation, as sub- and proto-bodily, trans-bodily and more-than-individual. For Butler (2015:36), the flesh is "not something one has, but, rather the web in which one lives". It is the enfolding relationship between the flesh of the world and the body (Grosz 1994:103) that constitutes both lungs and air. In this way, cycling lungs show how exposure is not inherently positive or negative. Exposure is a prerequisite for sustained life, as much as it is a prerequisite for uneven susceptibility to harm.

I do not want to centre a notion of the flesh as purely material, but to view the flesh as *configured*: the thrown togetherness (con) of the material and ideological

(figure) (Grosz 2017). This means a cycling body is not a collection of "stuff" and "ideas", but always already an amalgamation of both, with implications for understanding cycling and embodied difference. Rather than a body labelled by fixed identity categories, the focus becomes how the hierarchies of value and infrastructures of power in heteropatriarchal ableist racial capitalism become enfleshed. Rankine (2015:63) writes of racism, "You can't put the past behind you. It's buried in you; it's turned your flesh into its own cupboard". Shallow, quickened rates of breathing in anxiety or startle responses (Jovanovic et al. 2009) are other micro-mobilities in which relations of power become enfleshed as trauma.

This is not to say enfleshment operates solely through trauma or through a micro, individualised or phenomenological understanding of experience. McKittrick (2017) has pointed out the problematic move of focusing Black thought at the level of the body and trauma. Instead, I want to think alongside those who have theorised the flesh as a way of reimagining what it means to be human (Weheliye 2014). The flesh of the lungs subverts narratives of embodiment as necessarily micro and individuated, and instead historicises enfleshed experience and emphasises its imbrications in racialised and gendered constructions of subjectivity and humanity (Ferreira da Silva 2007).

By thinking with lungs, I turn away from the modern subject, differentiated by identity categories and characterised by a body, capacities and exposure "owned" by a person. Yet, differentiation is central, as Choy (2016) writes: "…breathing together rarely means breathing the same". Enfleshment is a proliferation of differences understood as race (Saldanha 2006), gender, sexuality or capacity (Puar 2017) *materialised* (Saldanha 2006) through relations of power that condition uneven possibilities for breathing and maintaining an obdurate malleability of flesh. Thinking through lungs means recognising human entanglements with non-human entities and processes including pollutants, vehicles, fossil fuels and carbon cycles. With Povinelli (2016:43), this shifts from a notion of (mobility) justice based on the politics of liberal, state-sanctioned identity, recognition and inclusion ("see me", "listen to me") towards the radical justice of "I can't breathe" and the uneven, racialised configuration of material and semiotic conditions of breath, mobility, life and death. Understanding justice through enfleshment asks how mobilities and energies in multiple time-spaces can be reconfigured (Davidson 2021) so it is no longer just a few who breathe freely at the expense of many.

A Methodology of Riding Theory

This paper emerges from my experiments in cycling as a form of embodied praxis—a melding of theory and practice (McKittrick 2015b). While I draw on cycling fieldwork in Los Angeles, this paper is not an in-depth ethnography of cycling. Rather, cycling and the cycling lungs offer a relatively accessible low-tech, everyday, and mundane figure (Haraway 1997:11) for working through the implications of ideas of mobile embodiment.

Starting in 2013, I recorded my cycling practices in video, audio and notes, and attended sustainable transport meetings, cycle safety training, transport and

urban planning conferences and talks, largely in the UK and the US. In Los Angeles in 2014 and 2015 I took fieldnotes as I cycled for transport, attended group rides and protests, and volunteered for a cycling advocacy organisation. I interviewed and spoke with cyclists, academics, transport activists, cycle shop owners, advocates, volunteers, and planners, immersing myself in cycling-related policy papers, news articles and social media and conducting ride-along interviews in different parts of LA (including West LA, Beverley Hills, and Boyle Heights, a largely working class Latinx neighbourhood). I arrived with a series of questions, but my approach changed: as a Boyle Heights-based non-profit worker said, "People don't need to come with questions, they just need to come and listen".

I wanted to think through cycling in LA in part because LA was so thoroughly theorised: from the freeway (Banham 1971) as a city to be admired and emulated; as representative of new forms of urbanism (Soja 2014), capitalism, urban segregation and militarised policing (Davis 2006); and as the epitome of the postmodern city and the birthplace of a school of urban theory (Dear and Dahmann 2008). I had heard of the yearly Clitoral Mass ride—a group ride organised by the feminist cycling brigade the Ovarian Psycos (now the O.V.A.S.; Overthrowing, Vendidxs, Authority, and the State)—and wanted to consider how feminist theories of LA are ridden/written from cycles.[1]

I want to acknowledge how ideas in this paper emerge from cycling with and listening to a diversity of people with in-depth knowledge and experience of cycling in LA. Many aspects of theories I discuss in this paper are being practiced by feminist-of-colour cycling brigades such as the O.V.A.S. and mobility justice organisations like LA-based People for Mobility Justice (https://www.peopleformobilityjustice.org/) and Untokening (http://www.untokening.org/). Yet the experiences and dialogues I had access to, and this text, have also been shaped by my positionality as an outsider in Los Angeles, my European background and accent, colonial and neo-colonial legacies, whiteness, class, nationality, institutional privileges and mobilities, and my capacity to ride a bicycle. I choose to highlight these positions of privilege, rather than more marginalised aspects of my subjectivity (gender, sexuality and health), because privileges often remain opaque when the work and exposure of "situating oneself" falls predominantly to authors with experience of the sharp ends of ableist, sexist, heteronormative racial capitalism.

As Weheliye (2014) argues, drawing on the work of Wynter and Hortense Spillers, the production of knowledge within critical theory remains wedded to the "coloniality of Man", where Western frameworks and dominant figures of the human (e.g. whiteness, masculinity, middle-classness) stand in for all of humanity. This means (often white, male, Western-centric) theory speaks to embodiment in universalising ways, perhaps adding a footnote to explain that discussions of race or gender are beyond the purview of their work, while critical race, Black, feminist, queer, disability or crip theories are denigrated as identity politics or relegated to the fieldwork site and "ethnographic specificity" (Weheliye 2014:11). Therefore, in this paper I neither offer an in-depth ethnography, nor a purely theoretical argument about cycling bodies. Instead I show how different theories of

embodiment are enacted through everyday cycling practice and policy and how cycling subjectivities might (already) be theorised and practised otherwise, in ways more congruent with radical mobility justice (Davidson 2021).

From "Taking Space for Cycling" to Aspiring for Justice through Enfleshment

Below, I draw on fieldwork in Los Angeles to show how the presumption of "Man" as the liberal mobile subject remains embedded, and is reproduced, within some strands of cycling policy and advocacy. First, I examine behavioural interventions that aim to "make space" for cycling, by fining drivers or encouraging cyclists to protect themselves. Second, I consider infrastructural interventions aiming to make space for cycling. I argue that these interventions share a concept of the road as a container filled with separate and competing individualised, bounded, rational utility-maximising subjects (Manderscheid 2016). In both parts I explore how the metaphor of the cycling lungs and the concept of enfleshment allow for a mobile subjectivity understood as exposed and configured through relations of power. In the third section I focus empirically on the lungs and breath, to illustrate how concepts of enfleshment might allow for transformative understandings of mobile subjectivity and justice.

Taking Space for Cycling: Interventions in Behaviour

The Californian Three Feet for Safety Act, introduced in September 2014, requires motorists overtaking cyclists to leave three feet of space or face a $35 fine. Part of courteous, law-abiding driving (NHTSA 2017), a three-foot air buffer could mean the difference between life and death for people on cycles (Karush 2015). I argue that such laws and interventions in isolation risk reinforcing individualised, notions of exposure, safety, and the bounded mobile subject. Instead, thinking with the metaphor of the lungs, I argue that exposure is both a condition of possibility of a body's endurance and expiration. Thinking with the lungs means situating differential exposure to harm not within bodies themselves, nor within identity categories, but as the enfleshment of power through systemic injustices, infrastructures, spending priorities, laws and material differences of speed and mass.

Thinking about a three-foot air buffer with cycling lungs means justice and politics of a street become less about absolute distances nor more fairly delineating responsibility amongst road users, but about configuration: the lungs do not allow for a fixed arrangement and separation between the body and the air, but instead speak to the active, ongoing production of matter-meanings of mobility and its differential exposures. Thinking with the metaphor of lungs means comparing the configuration of the three feet immediately surrounding a cyclist and a driver, by drawing on material and ideological histories and politics beyond the space and time of a given encounter and street. A three-foot air buffer is a materialisation of a law and norms around "safe" driving and overtaking. In some respects, the air buffer can become enfleshed both in the material exposures

mitigated, and the uneven effects on riders' bodily comportment and sense of entitlement to space. Similarly, the car bumper is a materialisation of hierarchies of bodily value, ideas of safety, gender, success and modernity, a car's capacity for speed and the density of fossil fuel energy. The crumple zone built into car bumpers was designed to slow down deceleration and minimise damage to the drivers, passengers and auto-body, rather than cyclists and pedestrians (Simms and Wood 2009:99).

While a driver's spatial boundaries might appear to extend to the car, a cyclists' boundaries might appear to be closer to the skin. In the short documentary *Genre de Vie* available on YouTube (with approximately 25,000 views since 2015 up to 2021; https://www.youtube.com/watch?v=B9y93T_h3ks), Paul Steely White echoes a perspective I heard from other cyclists: " … instead of being encased in metal, you're, I think, a lot more humane, you're vulnerable". The Latin roots of the word exposure imply being placed outwards, and the vulnerability described could be a cyclist's relative exposure to heat, wind and noise, potholes, particles, precipitation, collisions and the potential dangers and joys of being seen, heard and recognised. In some respects, cycling is placed outwards in encounters with environments that are not always controllable nor made to the measure of the human. In contrast, the car's internal environment of temperature, air filtration, shelter, screens, and sound is tailored to particular humans.[2] Understanding enfleshment as inherently exposed unsettles false oppositions between ("exposed") cycling and ("safer") driving. A cyclist may be differently exposed to air pollution (Chertok et al. 2004),[3] effects of bodily inactivity, to feelings of exhilaration and joy, or to bruised lungs and other injuries sustained by stopping abruptly in a moving vehicle. Conversely, being "encased in metal" may leave some more exposed to anxiety: being unaccustomed to driving in LA, I had moments of panic on freeways, very different to the fears I felt on the bike. Antonio, a restaurant worker I spoke to in Boyle Heights, commuted by bike and spoke of sometimes having to pull over to catch his breath when driving.

Despite this complexity around exposure, cycling safety discourse commonly places responsibility on cyclists to ride in precautionary ways and use helmets, lights, reflective and visible clothing (McGuire and Smith 2000). US cycling safety guidance (Calbike 2019) recommends cyclists position themselves away from the curb in "primary position", "taking the lane" to remain visible and deter vehicles from overtaking unsafely. In the seventh edition of John Forester's *Effective Cycling* (2012)—for decades forming the basis of cycle training offered across the United States (Pucher 2001; Ryan 1978)—bike lanes are shunned in favour of "vehicular cycling". According to Forester, cycling should be the reserve of those with the right knowledge, bicycle, confidence and fitness to behave like vehicles. In a section entitled "The Physiology and Technique of Hard Riding", Forester discusses how to achieve aerobic fitness and efficient cadence and the need to endure "a bit of pain in your lungs". This bodily comportment requires a fitness, lung capacity, visibility and entitlement to the road that is not equally accessible nor safe for all cyclists. Riding a wider and lower reclined hand cycle—as discussed by one of my interviewees who had been in an accident—can mean being less visible in

traffic and receiving aggressive reactions from drivers. Steely White, as a white man, describes cycling's vulnerability in a positive light, but being seen, and being seen to take up more space in public while black (Newton 2015), fat, a woman, trans, gender-non-conforming, or on a broken or old cycle, can bring risks of harassment, driver aggression or police stops.[4]

Within dominant approaches to cycling research and advocacy, the ability to conform to norms of supposedly "safe", confident (Dill and McNeil 2012) and fearless (Horton 2007) riding tends to be tied to individual psychology or attached in essentialised ways to identity categories, typifying women, for example, as more risk-averse (Pucher et al. 2010). A cycling advocate in LA demonstrated this view in contrasting his own proficiency and comfort "taking the lane" to women and Latinx immigrants who, he said, tend to "hug the curb" and risk being "doored". As Lugo (2013) has indicated, for cyclists with high levels of enfleshed privilege, cycling may be their first experience of relative marginalisation, one which is fought with a sense of entitlement. This perspective was affirmed by another white male cyclist I interviewed and rode with—at a speed I struggled to match—from West LA through Culver City, changing lanes alongside fast-moving cars:

> … I feel like I belong on the street. I feel like, it's not entitlement, I don't know if that's the right word, a confidence issue. I feel like I shouldn't be forced onto the sidewalk, going three miles an hour avoiding things … and if they're not going to pay for a lane for me, I want to force them, and I have the faith that these people aren't going to run me over, I have the confidence that … like I'm a part of this society and that … [Interjection by partner: "The system works for you to some degree, even though it doesn't to such a great degree … "] (Interview, November 2014)

"Overcome the fear!" is a statement I heard in a local cycling advocacy meeting years later. The aligned "protect yourself!" narrative remains dominant in cycle planning (Culver 2018; Pucher and Buehler 2008) and in discourses around the clothing and skills required of a "good cyclist" (Aldred 2012). While it may mitigate some harm, such protection is not a solution to systemic exposures. I felt this keenly one evening in November volunteering on the cycle path along the LA River near Los Feliz, calling out: "free bike lights, do you want free bike lights?". John was riding an old bike and in the dusk stopped to chat and pick up lights. I asked the questions on my volunteer script:

> "Is the bicycle your only mode of transport?"
>
> "Yes."
>
> "Zip Code?"
>
> "Why?", he asked.

He didn't have a fixed address right now, gesturing to the bridge he'd cycled from.

In Los Angeles this focus on individualised bodily protection extended into legal and financial protection. Within what Lochlann Jain (2006) calls American injury

culture, US Cycling websites carry advertisements for cycling lawyers and insurance. Nako Nakatsuka, a UCLA triathlete, curated the safety resource BikeWoke.com, advising cyclists what to do when hit: go to a hospital in an ambulance; take photos; have witnesses; ensure police reports are written; and call a lawyer. Nako was rear-ended by a driver while commuting and without insurance or a trail of evidence she was subsequently sued for damages by the driver's insurance company.

Nako's case illustrates how a particular understanding of the cycling body is reproduced through insurance, advertising, injury law, privatised medical systems and the discourses around safe cycling. As Jain (2006) argues, this configuration of the individual and of wounding (as an affront on rights-bearing individuals) keeps in motion an array of legal and medical industries. A cyclist's "safety" is configured through channels of legality (who is entitled to—and safe with—the involvement of law enforcement?), social recognition (who gets to count as a legal, insurable person whom lawyers will represent?) and the market (who can afford insurance, legal representation or medical treatment?). In this context, cycling by "choice" and being able to take the lane are *enfleshments* of privileges. Rather than embodiment of discourse or performance of a particular identity, these are material-semiotic conditions that include access to equipment, insurance, legal status, bodily capacities, confidence, whiteness, heteronormative, masculinity and wealth and that differentially configure the possibilities and experiences of cycling.

Rather than focus on how relations of power configure possibilities for cycling, much cycling advocacy remains focused on diversification or inclusion of less confident, visible or resourced others into supposedly correct bodily comportment using awareness-raising, enhanced visibility, training, regulations, reflectors, clothing and flags, and individual empowerment (Pedal Love 2016). This can be problematic in several ways. First, as Horton (2007) suggests, it reinforces cultural representations of cycling as dangerous, deterring people from cycling. Second, it presumes particular configurations of street space—speeds (fast), size and mass of technologies (higher, bigger and heavier), relations between users (regulated competition), and uses of the street (efficient flow towards a destination)—as valued and normative and to which all users should adapt. Third, viewing cyclists and drivers as individuals "choosing" safety risks hiding the wider biopolitical relations of power that configure—and require—unequal wounding (Jain 2006:32) and, as I will argue further below, unequal capacities to breathe. Finally, it reproduces individualised, rational, able-bodied, fast, confident, space-owning, competitive forms of embodiment and comportment as normative and valued. When they reiterate these conceptions and hierarchies of embodiment, efforts to "take space for cycling" reproduce notions of the Body of/as Man based on the norm of whiteness, masculinity, rationality, able-bodiedness, middle-classness and heterosexuality (Weheliye 2014; Wynter 2003), a figure that relies on a gendered and racialised denigration and dehumanisation of othered bodies, deemed "mere flesh" (Spillers 1987).

Making Space through Streets: Interventions in Infrastructure

> The bike lane [on Sunset Blvd] stops at the traffic lights, where you need it most. The bike lane is positioned exactly in the door zone. You have no choice but to either get doored to death or to drive. (Author's notes from fieldwork, 2014)

As well as interventions in behaviour to "take space" for cycling, as discussed above, changes in infrastructure are used to "make space" for cycling. Infrastructures such as cycle-lanes are commonly seen as necessary to increase cycling (Hull and O'Holleran 2014), reduce injuries and fatalities (Pucher and Buehler 2016), and enhance accessibility to users of all abilities, genders and ages (8 80 Cities 2019; Garrard et al. 2012). In the Los Angeles 2035 Mobility Plan, for example, the need for Complete Streets is emphasised, providing mobility and safety for "pedestrians, cyclists, motorists, children, seniors, homeless and people with disabilities" (Los Angeles Department of City Planning 2015:46). In this section I focus on LA Complete Streets initiatives and argue that the metaphor of the cycling lungs (and the reciprocal enfleshment of space and mobile subjects) can help us consider how infrastructures are both materialisations of dominant notions of the desired mobile subject and, at the same time, enflesh mobile subjects in highly uneven ways through configuring differentiated exposures and access.

The Complete Streets concept was coined in 2003 by Barbara McCann, working at America Bikes, to move beyond merely accommodating cyclists on car-dominated streets towards streets designed around principles of safety, accessibility, sustainability and "vitality" for all users (Zavestoski and Agyeman 2015). Complete Streets designs often involve slowing motorised vehicles through narrowing their travel lanes and introducing roundabouts; bike lanes buffered by planters or car parking; and enhanced public transport and pedestrian provisioning. Despite the rhetoric of inclusion for all users, some Complete Streets designs have upheld structural, representational, spatial and mobility inequalities (Zavestoski and Agyeman 2015). Specifically, I argue that they risk being designed around—and materialising—cultural, class-based and racialised notions of desirable mobility, safety, liveability and mobile subjects: productive consumers making mobility choices and contributing to economic growth. The Los Angeles 2035 Mobility Plan, for example, "recognises the importance of our City's streets as the lifeblood of our health and economy" (Los Angeles Department of City Planning 2015:31–32). It needs to be asked what (genres of) life and aspirations are included in "our health and economy"?

While car-oriented planning tends to be based on economic projections, conventional cycle planning has often been a response to cyclist fatalities and injuries. Paradoxically, death or injury is then a precondition for constructing "safer" infrastructure.[5] Death and injury on streets are also deeply racialised. In LA, people racialised as Latinx and African American are over-represented in pedestrian fatalities (Loukaitou-Sideris et al. 2007), and across the US men of colour are overrepresented in cycling deaths (PeopleForBikes and Alliance for Biking and Walking 2015). While changing the design of a street can reduce direct fatalities or injuries on that street, questions need to be asked around who safer streets are designed for and who has access to them?

There is an increasing amount of literature on the links between investment in "green" and "liveable" infrastructure and gentrification (Hoffman 2015; Langegger 2015; Rigolon and Németh 2020; Stehlin 2015; Stein 2011). Recent quantitative research in Los Angeles (Collins et al. 2021) indicates that gentrifying areas see higher levels of "order maintenance" policing (citations for low-level infractions, specifically targeted towards homeless or low-income groups). This aligns with the experiences of police stops recounted by cyclists of colour in areas like Boyle Heights and coincides with the enhanced presence of Business Improvement District (BID) security guards in areas like Downtown LA. In 2014, in La Concha in Boyle Heights, cycling activists gathered for the event "Will Bicycle Infrastructure Gentrify My Hood?". Close to Downtown, Boyle Heights was increasingly seen as a gentrification frontier, and although bike infrastructure was largely desired, it was questioned whether it was intended for—and involved sufficient consultation of—existing communities. An assessment of the Spring Street Parklets (miniature parks and seating reclaimed from on-street parking) in Downtown LA, for example, showed men, white, and young people over-represented among users (Loukaitou-Sideris et al. 2013). The development of green spaces, especially in conjunction with active travel, is associated with displacement of lower-income groups (Golub et al. 2016; Rigolon and Németh 2020). As such, the promotion of cycling infrastructure can go hand-in-hand with gentrification, narratives and policies of austerity (Nikolaeva et al. 2019), and white supremacist biopolitical governance of population health (Golub et al. 2016; Stehlin 2014). As one planner I spoke to phrased it: "Places like Downtown were economically unsuccessful, places like Broadway were where huge numbers of immigrants spent their first dollars in LA and stuff, and yet they're not … I was going to say … healthy communities".

When definitions of healthy and safe streets centre Man (white, masculine, able-bodied, middle-class) as the ideal mobile subject, not only are "undesirable" populations policed or excluded, but efforts to include demographics and transport modes risk remaining tokenistic. Redesigning street spaces alone does not remedy the more structural determinants of unjust mobilities, such as the gendered division of social reproductive labour, including household-related travel (Smart et al. 2014), or the lack of affordable housing near work and the social, economic and health implications of long commutes. A restaurant worker union rep I interviewed mentioned how few workers can afford to live near workplaces. Antonio cycle commuted almost 40 miles a day, a commute that comes with its own risks and exclusions.

If access to street enhancements is highly uneven by race, class, age and gender, so are the associated enfleshments: where Complete Streets include more trees or reduced motorised traffic, it is more likely to be wealthier and white people whose lungs benefit from these interventions. As the LA-based nonprofit TreePeople (https://www.treepeople.org/) highlights, tree canopy can reduce exposure to UV and ambient temperatures, but poorer areas tend to have lower levels of tree coverage (Moreno et al. 2015). Extreme heat events, becoming more prevalent due to climate change, can exacerbate respiratory disease, and people who are older, poorer, and have prior health conditions are particularly

vulnerable (Reid et al. 2009). It is also more likely to be people of colour and people on lower incomes whose lungs are exposed to near-roadway air pollution (Gabbe 2018).

Such uneven access and exposures are not accidents,[6] nor aberrations that happen to be unequally distributed along racial, gender and class lines. Nor should exposure to premature death be understood as linked *essentially* to categories of bodies or forms of infrastructure. Exposures (to pollution, crashes, heat, joy, positive affects) and the configuration of infrastructures are how racial capitalism is actively materialised (Jain 2006; Pulido 2016), benefiting those who most fit the valued mobile liberal subject. In other words, streets, as the "lifeblood of our health and economy", are infrastructures of control that materialise heteropatriarchal, ableist, racial capitalism and enflesh bodies differentially. This is seen through the freeway construction that paved the way for suburban white-flight and segregation of Black and Latinx neighbourhoods (Avila 2014a) and the streets that keep oil pumping through the US economy (Huber 2013), enacting climate injustices. CicLAvias, open streets events held on Sundays several times a year, might offer a glimpse of streets configured otherwise: as relational, interdependent, non-utilitarian spaces of socialising, lingering, dancing and activism (Lugo 2013). Yet without more systemic changes these remain visions of what is possible or brief respites from business as usual. As long as visions of safety include policing, definitions of health remain racist, classist and ableist,[7] and streets remain primarily avenues for economic growth, a streetscape makeover will not manifest justice.

Aspirations for Justice

> There was a collective call on some O.V.A.S. rides. In underpasses someone would start, and others followed until it became a reverberating gathering of breath and sound.

Where interventions to encourage ("safer") cycling focus more narrowly on individual road users' behaviour or making space for cycling through infrastructure alone, there is a risk of interpreting mobility justice as simply enhancing diversity of, or inclusion into, the status quo. In contrast, what I would call radical or transformational mobility justice is a notion of mobility justice that is already lived, ridden, and theorised through grassroots groups such as the O.V.A.S., Multicultural Communities for Mobility (now People for Mobility Justice), and people with lived experience of racism, ableism and/or sexism operating within mainstream cycling planning and advocacy. These are theories of justice which, like the O.V.A.S. (2019) rides to "heal their bodies and communities", protest and "connect the dots" between mobility and abolition, decolonial, feminist, economic and racial justice. Cyclists are understood as enfleshed through wider relations of power. For example, in the 2016 documentary *Ovarian Psycos*, Xela de la X, reminiscent of the Zapatistas, says: "We are the remnants of 500 years of colonisation". This kind of radical mobility justice tends not to be focused solely on infrastructure, nor individual safety or health. Rather, these varied collectives "breathe life into ever new possibilities for living justly" (Barad 2007:x).

Below I consider what ideas of enfleshment might mean for understanding bodily difference, health and mobility justice by working through the breath and questions of justice raised by the O.V.A.S. and Black Lives Matter (BLM) in 2014. First, as explored above, thinking with the flesh of the lungs means understanding differences not as purely discursive identity categories but as relations of power that are materially breathed into being: the possibilities of breathing are conditioned by the freeways that boxed in your childhood home in Boyle Heights, the busy streets you walked or cycled along, and the anxiety of, as one respondent put it, "growing up in the 90s [in Boyle Heights] dodging bullets". Higher exposure to traffic-related emissions (including fine particulate matter, nitrogen oxides, and CO_2) is associated with cardiovascular and respiratory disease as well as low birth weight and pregnancy loss (Kioumourtzoglou et al. 2019). Exposure varies greatly across space and time and with level of activity. For example, the higher breathing rate associated with cycling as opposed to walking can increase exposure (Krecl et al. 2020). Rather than focusing on identity as a collective label or as essentialised differences, radical mobility justice seeks to understand how context-specific relations of power configure matter-meaning to make breathing and moving easier and more life-enhancing for some at the expense of others.

Thinking through the breath and enfleshment forges an understanding of health that does not rest in the pathology of a body part in an individualised body, nor is it attached in essentialised ways to social collectives or categories. Eric Garner and, more recently, George Floyd's words "I can't breathe" became pivotal in BLM. For Dillon and Sze (2016:19), these words are a way of understanding how the capacity to breathe is a "condensing" of racialised histories of (police) violence and pollution. As they point out, a focus on Eric Garner's long-term conditions of asthma, obesity and diabetes allowed the media and the state to individualise his death. To think instead of asthma as a condensing or *enfleshment* of racialised structures of power is to acknowledge the (highly uneven) complicities of all who cycle, drive, consume and breathe: NO_2 and diesel exhaust particles increase asthma symptoms and proximity to heavy traffic is linked to asthma hospitalisations (Huang 2009). In Los Angeles, asthma prevalence and outcomes are linked to geographic area, health insurance coverage, poverty and race, with African American children having three times the prevalence of asthma (almost 20% of children) than white and Latinx children (Los Angeles County Department of Public Health 2014).[8] Exercise, such as cycling, can trigger asthma, and yet exercise is considered necessary in asthma management.

Lungs are enfleshed by highly uneven distributions (by race, gender, class, disability, age and geography) of exposures, mitigation and care, across and beyond the space of the street or the timespan of an individual life. Some of the Latinx women I spoke to in Boyle Heights described how their mothers discouraged cycling as unsafe for girls. How might the development of their lungs have differed from their brothers', or from white girls who grew up in West LA? When cyclists meet for a group ride at an intersection in Los Angeles, each set of lungs is an enfleshment configured by exposures to multiple meanings and materials and spatio-temporalities. This is not a linear or fixed determination of health, but an enfleshment of historical legacies and anticipated futures.

Finally, thinking through enfleshment frees notions of mobility justice from the property and rights-owning liberal subject, and goes beyond simply becoming attached to social collectives. Thinking through the lungs brings wider inhuman spatio-temporal relations into mobility justice. Fossil-fuelled vehicles, for example, can be understood as combusting vast time-spaces releasing dense energy (Clark and Yusoff 2014). A cycle, while requiring mining and fossil-fuel input in its production, for its day-to-day running requires inputs (food energy) which have very different space-time footprints. As I have argued elsewhere (Davidson 2021), viewing cycling in this way forces an opening up of questions of justice and responsibility beyond specific street spaces or cities. This became clear to me when visiting an LA car show in 2014: in the branding and advertising of "zero emissions" vehicles the moral value of sustainability was attached to the vehicles, and by extension, the drivers. Instead, thinking through the lungs and enfleshment traces the laboured breathing of those exploited to extract profit to procure the car; the deforestation of "lungs of the world" for mines; and the cobalt dust in the lungs of miners. Tailpipe emissions accounting that deems vehicles "zero emissions" might protect the lungs, consciences, and carbon budgets of consumers and those sharing a spatial proximity and jurisdictional boundary for carbon accounting. However, many environmental burdens and harms are displaced, delineated as "over" or "elsewhere", allowing for ongoing colonial-capitalist violence to be cast outside the realm of calculation and responsibility (Massey 2005). Enfleshment implies a justice that goes beyond individualised recompense[9] or street spaces and mobility that are differently owned[10] or redistributed. This is a form of justice that might at times align with calls for collective justice, but, as in the example above, defies identity-based collectives in tracing spatio-temporally diffuse material and symbolic relations and forces. This notion of justice requires transformational reconfiguration of matter and meaning.

This reconfiguration of matter and meaning can look like redefining safety, health, sustainability, and justice. These moves were happening on the streets of LA in 2014 and 2015 in movements for mobility justice and continue nationally through, for example, the Breathe Act (https://breatheact.org/), which focuses on divestment from incarceration and policing and investment in non-carceral forms of safety, health and sustainability and self-determination for Black communities. Cycles can form part of this reconfiguration as practical, affordable tools to protest, raise awareness, share joy and resignify enfleshed mobility, space, and power. During the 2014 BLM protests, a cycle's "chameleon-like" capacity (Nello-Deakin 2017) to merge with pedestrians allowed protestors to access and quickly leave protests while sharing a sense of bodily precarity and interdependence (Butler 2011). Cycles were used to lean on when tired and to block vehicular traffic on freeways and at intersections with "die-ins" (Avila 2014b). Cycling can reconfigure environments and street spaces in particular and creative ways (Castañeda 2019). Yet there is nothing inherently emancipatory about cycling or any other mode of mobility—for example, the LAPD and BID security guards used bikes in 2014. It matters crucially how the specific energies, exposures and efforts required of cycling and its material and semiotic effects are enrolled in relations of power. The O.V.A.S. group rides and BLM protests, ghost cycles that memorialise cyclists

killed while riding, and CicLAvia events show how (im)mobilities might begin to breathe into being new configurations of social life, affect, emissions, pollution, and possible futures.

Conclusions

Thinking through enfleshment with (the figure of) the cycling lungs offers a way to theorise mobile subjectivity at the scale of the differentiated body and below, without evading systemic power relations. I have argued that transport policy and advocacy that focuses narrowly on behavioural or infrastructural interventions risks reproducing the mobile subject as an individualised, rational actor competing to protect ownership of a bounded, "healthy" (efficient and economically productive) body. In contrast, thinking through the lungs with material feminisms and Black feminist ideas of flesh offers an understanding of *enfleshment* as radically relational and necessarily exposed: the lungs speak to the permeable, enfolded relations between bodily insides and outsides and the sub-bodily and more-than-individual processes through which violence, harm, pollution and efforts configure mobility unevenly. This has implications for understandings of mobility and embodied difference. Much cycling advocacy and research correlates health or confidence with categories of bodily difference, attaching premature death, illness, fear or lack of fitness onto bodies and neighbourhoods labelled as queer, ill, aged, poor, immigrant, female, Black and/or disabled, making these in need of intervention and "fixing". Thinking through the enfleshment of lungs shifts understanding towards a notion of mobile subjects as always (differentially) and necessarily exposed, configured through (racist, heterosexist, ableist) hierarchies of value and relations of power across multiple times and spaces (Smith and Vasudevan 2017).

Thinking through enfleshment has implications for how mobility advocacy and scholarship are practised. Rather than view mobility justice as inclusion, (re)distribution, or legal retribution amongst individual actors or categories of road user vying to "take up space" on streets, a politics of the cycling lungs speaks to a reconfiguration of relations between bodies, infrastructures and flows that are necessarily complicit in, and reliant upon, one another's exposures. In other words, ableist, heterosexist racial capitalism actively requires the laboured breathing of many for some to breathe "healthily" and "sustainably". The energies, foods, infrastructures, emissions, particles, discourses, and geopolitics that mobility both requires and configures become questions of radical mobility justice. This subverts moralistic tropes of individualised responsibility for healthy, safe, or sustainable travel behaviour and instead brings sustainability and health together as deeply political questions: what flows of material-meaning and power do mobilities facilitate and require? Which streets and communities have life breathed into them? Rather than widening access to cycling, or including cycling into streets driven by possessive individualism and productivist and gendered, racialised and ableist hierarchies of value, the question becomes one beyond cycling: what praxes of (im)mobility can reconfigure ways of being human?

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Endnotes

[1] The term bicycle assumes two wheels, excluding tricycles and hand-cycles. I will generally use the term "cycle", only using "bicycle" when referring to two-wheeled cycles.

[2] Car safety design has often been based on the "50th percentile male". Research shows people classified as female or obese are more likely to suffer certain types of severe injury and death in car accidents (see Feigenoff 2018).

[3] Research indicates that exposure to NOx and some compounds like benzene may be highest in car commuters (Chertok et al. 2004).

[4] Under the California Vehicle Code a cyclist on the highway has to comply with many of the same rules as a car. A vehicle which is slower needs to stay right and allow others to pass where possible (contradicting the "taking the lane" advice) (DeSousa 2010).

[5] I am grateful to an anonymous reviewer for making this point very eloquently.

[6] #CrashNotAccident, started by the US not-for-profits Families for Safe Streets, Transportation Alternatives, and the Vision Zero Network (https://crashnotaccident.com/), aims to reframe the language around pedestrian and cycling injuries and fatalities away from that of an "accident". They want to focus instead on "fixable problems" of dangerous roads and unsafe drivers.

[7] Disability Adjusted Life Years measures are commonly used in discussing cycling safety and health. For criticisms of this measure, see Mason (2014).

[8] With relatively larger lung surface area and developing immune systems children are particularly vulnerable to asthma.

[9] A cyclist in LA won a $6.5 million lawsuit against the City of Los Angeles for hitting a pothole while cycling (Annis 2017).

[10] Shared cycle schemes may disrupt the literal individual ownership of cycles, but do not necessarily change the more fundamental presumptions of the (efficient, credit card owning, independent) mobile subject. Depending on the siting, cost, and ownership of schemes, they can become a service to predominantly privileged individuals and/or become a type of "primitive accumulation" where the means of mobility are privatised.

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