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Stress and the Biopolitics of Work

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Stress and the Biopolitics of Work

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Abstract

Health and labor organizations have increasingly identified work-related stress as a "modern epidemic" with highly detrimental effects on the health and productivity of workers. The definition of work stress, however, remains contested, and there are huge financial and political stakes involved in codifying work stress as an official category of occupational hazard. Taking urban transportation work as a case study, this dissertation examines how understandings of work stress as an industrial hazard are produced, institutionalized and contested.

Transportation workers are one of the most studied categories of worker within the field of stress sciences, and this research has shown transit workers to be among sickest workers of any occupation, particularly in regard to chronic, stress-related diseases. This dissertation project approaches transit work as a uniquely powerful site for studying the broader mechanisms underlying the social and material determinants of chronic disease, and as a point of departure for explorations into the politics of work, the sciences of stress, and state and legal frameworks for regulating injury and disease.

Using ethnographic methods, this project documents workers' understanding and experiences of stress, how biomedical scientists recognize (and disregard) the harms of work, and how political and economic interests shape everyday and medical understandings of health and wellbeing for workers. My analyses reveal how the bodily impacts of working conditions—as well as the biomedical recognition of work-related harms—are shaped by race, class and a broader reorganization of work in the United States.

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Chapter 1: Introduction

This dissertation is an examination of the relation between work and the production chronic disease in the United States. I focus in particular on how stress concepts and stress sciences have been developed and deployed to recognize, make visible, and contest the bodily harms of work. I take urban transportation workers as the central case study. Transportation workers worldwide are known to have some of the highest rates of chronic disorder of workers in any occupation. Transportation workers are also one of the most studied categories of workers in the field of occupational stress research. The topic of stress in the transportation industry therefore offers a fruitful site for this anthropological investigation into the forms of knowledge and politics connecting work and the body.

My inquiry begins in San Francisco where scientists found the city's public transit workers to have exceptionally high rates of hypertension. After having discovered strikingly high rates of chronic disorder, scientists initiated what would become the largest and longest-running study (>30 years) about health in the transportation industry. In this dissertation, the workers in the San Francisco Municipal Railway, known as Muni, serve as a point of departure for empirical and analytic explorations into the politics of work, sciences of stress, and state frameworks for regulating work-related disease. Accordingly, my ethnographic research traverses multiple fields, including the transit system workplace, the offices and research sites of stress scientists, the meeting halls of transnational labor organizations and state health officials, archival collections, and more.

The analyses in this dissertation investigate how the bodily impacts of working conditions and the biomedical and legal recognitions of work-related harms are shaped by race, class, and a broader reorganization of work in the United States. In this introduction, I summarize the broad content of the dissertation's chapters, introduce the topic of neoliberalism as a crosscutting theme running through the chapters, and introduce an historical and conceptual background for understanding transit work as an important site for examining the bodily effects of (post)-industrial life and modernity.

The Problem of Transit Worker Stress

I begin to define the predicament of public transportation workers by situating them directly on the boundary between industrial work and service work. On the one hand, like industrial factory labor, driving transit vehicles involves operating heavy machinery in monotonous and tightly time-regulated conditions that include exposure to machine exhaust, loud noise, vibration, and the risk of accidents and physical wounding. On the other hand, like service work, driving public transit vehicles involves face-to-face interactions with the public. A central facet of service work, shared by public transit workers, McDonald's employees, and retail workers alike, is the production and management of self-presentation and emotion as part of the work process (Hochshield 1983, Hardt 1999).[1] This dual role of the driver as machine operator and service worker is at the core of what makes urban transit work a demanding job. For the transit workers in my study, operating heavy machinery (buses, trains, street cars, and cable cars) in public spaces requires a constant, high level of attention and vigilance for public safety. A single slip-up can cause injuries or even cost lives. At the same time, the drivers face a

1 The anthropologist Bev Davenport (2004) observed what she calls "cool pose" among San Francisco Muni drivers, which she defines as a kind of emotional labor

continual stream of riders entering and exiting the vehicles, paying fairs, exchanging transfer passes, asking for directions, making conversation and, often times, complaining. The drivers also frequently become targets for riders' anger and frustrations, which manifest as verbal abuse and physical violence towards the drivers.

The Swedish scientist Bertil Gardell, often considered to be the father of occupational stress sciences, identified urban bus driving as perhaps "the most stressful occupation" in modern society. In his view, urban bus driving is such a stressful and hazardous form of work due to the fundamental conflict between the "Demand for service by the individual passenger [and the] need to keep a tight schedule in dense traffic" (Gardell et al., 1982:10). Since his initial observations, health scientists have identified many factors associated with exceptionally poor health outcomes in the transportation industry including long work hours, lack of breaks, tight schedules, and exposure to violence. In the field of work stress research, transportation workers are one of the most studied categories of worker. There is no other occupation for which there is "such a consistent and large body of evidence" establishing a connection between work and heart disease (Belkic and Savic 2013:37). Studies of transit workers began in the U.K. and Scandinavia as early as the 1950s and now extend to every continent. These studies consistently show urban transit workers to have higher rates of chronic disorders than most other forms of work. Health scientists claim, "During the past five decades occupational researchers have documented that bus drivers' health is worse than in almost any other profession" (Poulsen et al. 2007:75).

The workers who drive San Francisco's public transit vehicles have, for decades, played a role in the development of what is often referred to as the "world literature" on transit worker stress. At least 45 of peer-reviewed journal articles and eight

dissertations have been written about health of San Francisco Muni workers. These inquiries have focused largely on measuring and finding the cause of the alarmingly high rates of chronic disorders, in particular hypertension (high blood pressure) and cardiovascular disease. The research was conducted in a range of academic fields, including public health, social welfare, psychology, environmental science, and anthropology. Some examples of dissertations titles include "Role of anger in essential hypertension in Black bus drivers" (1985), "Occupational Stress and Alcohol Consumption: Self-report versus observational data in San Francisco bus drivers" (1996), "The Effects of shift work on family relationships" (2000), and "Driving driven: Urban transit operators, hypertension and stress(ed) management" (2004).

In Chapter 3, "Work Stress and the Racial and Class Logics of Chronic Disorder," I use a science and technology studies framework to explore how scientists connect the conditions of work in the transit system to poor health. I investigate how epidemiological research establishes the work-relatedness of the drivers' chronic disease. This involves controlling for and separating out the effect of race from the stress of work, as Muni workers are largely African American, a group that has significantly higher blood pressures than most other demographic categories. I explore the implications of making race analytically "not matter" for the sake of demonstrating work-related harm. I argue that racialized claims that Muni drivers are lazy and overpaid effectively limit the epistemic and political assertions that work is the cause of their increased risk of chronic disorder. Scientific and political claims about work stress in racialized, working class occupations such as transit work are constrained by a dominant figure of the white, middle-class, male worker as the paradigmatic sufferer of work stress.

Throughout this dissertation, I examine how forms of difference in the population—e.g. race, gender, age, social class, occupation—operate within the epistemic and political forms connecting work to health. In Chapter 4, "Universalizing Transit Worker Stress," I analyze the massive world literature on transit worker health. I chart the convergence of scientific research and transnational labor organizing through which the category of the "urban transit worker" is universalized against the backdrop of highly variable global economic conditions, forms of citizenship, and national contexts. Both scientific research and transnational labor organizing designate a category of the global transit worker with universal skills, experiences, concerns, conflicts and risks. I find that transnational scientific networks and labor organizations, together, co-construct transit work as one of world's *most stressful* occupations. I conclude this chapter by considering how concepts of "worker solidarity" operate within transnational labor organizing around health issues.

In Chapter 5, "Stress in the Law: Workers' Compensation and the Politics of Injury," I return to California, and provide an analysis of how work-related injury is defined and dealt with under the law. I consider how the emergence of the "work stress epidemic" during the 1980s and 90s made claims upon the law for new recognitions of psychological and emotional harm. I then study how physicians in a workers' compensation clinic address transit worker injuries and illnesses. I find that the medical gaze overwhelmingly frames transit worker's disorders as a consequence of the drivers' individual behaviors, rather than a consequence of a hazardous workplace. Furthermore, the medical gaze is conditioned, above all, by a suspicion of fraud and maligning on the part of workers.

The Transit System Workplace

The world literature identifies a consistent set of stressors for workers in urban transportation systems throughout the world. These can be summarized into two main categories: the schedules and the passengers. The transit schedules are often impossible to follow, involve long hours, and leave little room for breaks. Transit workers are also regularly exposed to passenger hassles and violence. Moreover, these two stressors interact. When the drivers are behind schedule, riders get increasingly frustrated and are more likely to act in threatening or violent ways.

While the hazardous features of the working environment have been delineated in previous research (largely public health oriented), there is very little writing on the political and organizational determinants of the working environment. *Why* do impossible-to-meet schedules continue to be designed and enforced within the transit system? This question remains vexing to workers, union officials, and health researchers alike. The union president in a large urban transportation system told me early on in my research that she believes the schedules are "political," or a way of enforcing discipline in the workforce. As the schedules are a key stressor, and an important site for intervention by unions and health researchers, I devote the first empirical section of my dissertation to a study of the political determinants of scheduling in the Muni transit system workplace.

In Chapter 2: "Mass Transit Workers, Urban Publics, and the Politics of Time in San Francisco," I provide ethnographic inquiry into the question of why the schedules are so hard to follow and, further, how public blame for the late vehicles gets directed towards the drivers. San Francisco's public transportation system is the slowest major urban transit system in the United States and has one of the worst on-time performance rates.

The system suffers from *problems with time*. I examine how these problems with time—slowness and lateness—are constructed in public discourse and mobilized in labor disputes with the drivers who operate the transit system. I find that widespread demands for faster moving and more timely transit lead to the implementation and enforcement of impossible-to-meet schedules, and political economic logics configure fault for the time problems in the work practices and work ethics of the transit drivers.

Disputes about the transit system's slow speeds and lateness intensify political opposition between public workers and the publics they serve. Racialized representations of the largely African American, public sector workforce as lazy, slow, and dependent on public employment contracts undergird public opposition to the workers. As I will demonstrate in this chapter, morally infused understandings of time and timeliness enable a neoliberal remaking of the transit system, its workers, and its publics. Political uses of temporality are central to the dismantling of drivers' public sector labor union, which is represented as fundamentally inefficient. Further, deployments of time remake the social and political aspirations of the transit system itself, delegitimizing the system's "social service" mission of increasing mobility for underserved residents, and instead refiguring the system as, above all, a driver of economic productivity. This process reveals new boundaries of who counts as the public and what counts as the public good.

Worker Health in the Context of Neoliberalism

I develop theoretical frameworks for each of the separate chapters in the dissertation.[2] Each chapter presents an empirical investigation interwoven with discussions of theoretical texts in anthropology and other social science disciplines. That being said, one persistent theoretical and political problem that spans the dissertation project is the question of how to conceptualize and register the effects of neoliberalism. I take neoliberalism to be both a political economic project and a mode of governmentality implemented through the calculated management of work, lives, and the health status of individuals.

As a political economic project, neoliberalism can be understood, above all, as a governing strategy and policy agenda that aims to guarantee the hegemony of the market (Harvey 2005, Wacquant 2012). In this economistic conception, neoliberalism is identifiable through a set of structural processes including deregulation, privatization, and the withdrawal of the state from many forms of public service provision (Harvey 2005, Ferguson 2010). These structural processes are bolstered by the continuous economization of ever more spheres of activity.

As a mode of governmentality, neoliberalism can be studied, following Aihwa Ong (2006), as "mobile calculative techniques of governing" (13), which fashion subjects, behaviors, and bodies appropriate to a marketized society. Neoliberalism's distinctive form of governmentality is oriented towards managing people as biological life, and is thus best described through a framework of biopolitics (Ong 2006, Foucault 2007, 2008). Michel Foucault (1984) identifies biopolitics as a governmental rationality and practice that "brings life and its mechanisms into the realm of explicit calculations"

2 In contrast to the format of writing a "theoretical chapter" and then a series of empirical chapters.

(265) in order to manage individuals and the population. In this way, neoliberal governmentality targets and harnesses life processes—including the mechanisms that support or degrade health—in order to produce subjects and behaviors adequate to a society defined in market terms.

Throughout this dissertation, I bring together conceptions of neoliberalism as a political economic project and as a mode of governmentality to explore connections among the politics of work in the economy; conceptions of the body, health, and disorder; and the shifting roles of capital, the state, and individuals in managing health.

As I explore in the next chapter, neoliberal reorganizations of work and city governance in San Francisco result in exceptionally difficult working conditions for Muni drivers today. San Francisco Muni drivers first became research subjects in 1978, right at the cusp of the neoliberal revolution in California. The health study, which came to be known as the Muni Health and Safety Project, was initiated with strong support for labor at both the federal and local levels. In the course of the more than 30 years of engagement with health researchers, the drivers' labor union transformed radically from one of the most powerful unions in the city to an embattled organization that is regularly condemned by the public and politicians. The union-led interventions into work organization and health management for Muni workers, which were developed through the Muni Health and Safety Project, have been largely reversed at the time of this writing. The reduced political status of organized labor in the United States corresponds with a disinvestment in worker health research and programing across the country more generally. Occupational health research and medical practice have continued to contract to the point of being a marginalized form of health knowledge.

The science and politics of worker health under neoliberalism are characterized by a withdrawal of the state from knowledge production and management of the effects of work on the body. As I will discuss, due to disinvestment in infrastructures of worker health data and research, scientists estimate that barely five percent of work-related diseases are ever recognized or treated as having a work-related cause.

An important determinant of this under-reporting and under-recognition is the lack of physician knowledge about work-related causes of disease. Training in identifying work-related causes of disease is not a standard part of medical school curricula, and occupational health as a medical specialty has contracted drastically during the past three decades. Occupational medicine residency programs across the country have seen continual decreases in applicants and enrollees.[3]

This trend coincides with the neoliberal political and organizational shift of responsibility for health to the individual, and away from state and capital. In the late 1960s, at the apex of labor union power in the United States, health and safety reforms of industrial workplaces became a popular concern and an object of major legislation, mostly notably the Coal Mine Health and Safety Act (1969) and the Occupational Safety and Health Act (OSH Act, 1970). These Acts, for the first time, gave the federal government the power to inspect and regulate workplaces. The OSH Act established the two key federal agencies for researching and regulating worker health: the Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH). By the early 1980s, these agencies became a primary target of the deregulatory agenda of the Reagan administration. In the eyes of many worker health specialists and state officials, these agencies have remained marginalized to this

3 This was reported to me by the director of a prestigious occupational medicine residency program.

day, and often lack the resources or political power to pursue their mission of protecting workers.

In Chapter 6, "The Biopolitics of Work," I bring Foucault and Marx to bear on our understanding of U.S. biopolitical state rationalities for recognizing and regulating work-related disease. I ask, how and when do work, and stressful working conditions, come to matter for how the state addresses the health of the population? In the U.S. biopolitical state, race, gender and age are the three thoroughly codified categories of population difference, while social class and, relatedly, type of work remain obscure. By contrast, in most European countries, occupation—or type of work—is the primary proxy variable for measuring health differences by social class. I find that the paucity of work-related data in U.S. health information systems undercuts the possibility of worker health surveillance. I track recent efforts by transit worker labor unions, other labor organizations, and worker health advocates, to reverse this trend by lobbying the federal government to include occupation as a standard demographic category in newly implemented electronic health record systems. Scientific and political efforts to gain recognition and compensation for the work-related disorders of the transit workers brings to light the state's disinvestment in institutions and policies that recognize the worker as a category of political actor.

Transit, Modern Life, and Stress: Some Background

Concerns about the psychological and bodily effects of transportation date back for over century, long before the development of contemporary stress sciences. For some stress scientists I interviewed for this dissertation study, urban transit workers are "good to think with." The exceptionally high rates of chronic disease for those working

in the occupation presents a puzzle about the social and psychological causes of disease which decades of research have still not answered. As a leading stress researcher told me, "The bus drivers, they are the canary in the coal mine," offering an intensified demonstration of the effects of manifold impacts of contemporary urban experience—long work hours, crowded conditions, social hostility and racial tension, incessant noise and visual stimulation, and polluted air. Attention to the urban transit worker offers a magnified view of the condition of urban life more generally.

Transportation has long been a salient site for registering the bodily effects of industrial life and modernity. Social theorists and historians point to the construction of railways as transforming everyday experiences of time and space (Harvey 1990b, Shivelbusch 1979). While the high speeds of railway travel exemplified the technological advances of modern life, they also threatened to disrupt what medical scientists began to regard as the "fragile and unstable human mind" (Jackson 2013:49). Transformations of time and space were increasingly associated with new forms of bodily and mental disorder. During the 19th century, medical researchers in the United States and Europe connected faster-paced, industrialized transportation—along with mechanization, urbanization, and faster communication—to new experiences and medical diagnoses of nerve weakness, fatigue, neurosis, numbness, trauma, and more (Shivelbusch 1979, Jackson 2013).

A prominent example was the emergence of *neurasthenia* in the 1850s, which was a new nervous condition explicitly linked to faster-paced life conditions, including travel. Its sufferers experienced tiredness and weakness, along with a range of physical and mental symptoms such as headaches, paralysis, and insomnia (Jackson 2013). Studies of neurasthenia, and its associated fatigue and nerve weakness, marked the emergence

of scientific investigations into mind-body mechanisms mediating a pathogenic relationship between modern environments and the body (Harrington 2008). In positing a psychically meditated bodily reaction to modern life, these scientific theories were early precursors of contemporary stress discourse (Cooper and Dewe 2004, Newton 1995).

Furthermore, as railway accidents became more common in the 19th century, a new kind of injury known as "railway spine" emerged. British physicians noticed that people involved in railway accidents were often not physically harmed by the accident itself, but weeks or months later, would develop troubling physical symptoms with no clear cause. Historians have argued that railway accidents were the first site of medical theorizations of what would come to be known as shock or psychological trauma (Shivelbusch 1979, Harrington R. 2003). The railway accident was seen as a new terror of "industrialized modernity …capable of bringing about new, insidious, highly disruptive forms of injury and disorder in the human body" (Harrington R. 2003:209). Railway spine has frequently been cited as the earliest medical articulation of trauma concepts that emerged in late 19th and early 20th century psychology[4], with physicians and surgeons investigating the psychic causes of physical disorder some 30 years before Freud would begin publishing on hysteria (Jackson 2013).

These medical concerns about the psychological and bodily effects of high-speed travel and railway accidents reflect broader apprehensions about social and technological modernity that persist in the contemporary stress sciences I examine in this dissertation.

4 John Eric Erichsen's 1867 book, *On Railway and Other Injuries to the Nervous System*, is often cited as reflecting a societal concern with the trauma of modernity.

Research

Data for this dissertation were collected between December of 2011 and June 2013. I used ethnographic fieldwork, semi-structured interviews, archival research, policy and document analysis, and media analysis. I studied the transit system workplace in San Francisco by interviewing drivers, union officials, managers, and city planners. I also conducted ethnographic observations in break rooms, rode along on many bus and train lines, and attended workplace meetings and ceremonies. I describe the logistics of the workplace research in the next chapter. To learn about the politics of transit organizing and health, I interviewed 17 union officials based in California, New York, Washington D.C., United Kingdom, Sweden, Norway, and Australia. And I attended two international meetings about stress, work and health.

To collect data on the science and medicine of transit worker health, I interviewed 39 worker health scientists and physicians based in the Bay Area, California; New York City; Copenhagen, Denmark; and Stockholm, Sweden. I analyzed hundreds of scientific reports and health policy documents.

Chapter 2: Mass Transit Workers, Urban Publics, and the Politics of Time in San Francisco

Introduction

During evening rush hour in San Francisco, a crowded bus pulled up to the intersection of Mission and 24th Streets, where a line of people had gathered at the bus stop. After a few people had boarded the nearly-full bus, a white woman wearing a blazer and khaki pants stepped into the bus and, blocking the line of passengers, leaned in close to the bus driver and said angrily, "I want to speak to your manager. I've been waiting for over an hour. This is ridiculous and I want to speak to your manager." The African American driver looked forward and said nothing. The woman did not move and kept staring at the driver. When another rider intervened, saying, "Come on. It's not his fault," the woman turned and lunged as though she was going to hit the other rider with her pocketbook, and several people standing nearby gasped. The woman then pushed through the crowded bus and stood, fuming.

For many transit drivers in San Francisco, such scenes are all too common. The San Francisco Municipal Railway, known as Muni, is often slow and late, and riders frequently direct their frustrations towards the drivers. Muni is, in fact, the slowest major urban transit system in the country and has one of the worst on-time performance rates (arriving on-time to planned stops). In recent years, vehicles have been on-time barely more than 50% of the time.[5] The system averages about eight miles per hour, a low point after a continual, two-decade decrease in speed. Muni's slowness and lateness cause long wait times and overall trip times for passengers.

5 According the "on-time" metric adopted by San Francisco's city charter, a vehicle is on-time when it arrives within six minutes of its scheduled stop.

This chapter examines how Muni's *problem with time*—its slowness and lateness—is constructed in public discourse through political economic logics emphasizing efficiency and productivity. The predominance of productivity logics in urban planning and governance corresponds with the ascendance of neoliberal economic forms and values. These logics enable the public and politicians to find fault for the system's problem with time in the inefficiencies of public sector labor and progressive urban governance. The drivers' Transport Workers Union Local 250-A (TWU 250-A) is an historically African American labor union, with increasing numbers of Asian American and Latino members. I argue that the expanded scope of the discourse of productivity within governing and planning practices works to 1) foster resentment towards public transit drivers, 2) cultivate racial and class tensions in the city, and 3) redefine the "public good" offered by the public transit infrastructure and, in the process, privilege the mobility of the city's business class.

During peak commute hours, a fleet of nearly 800 vehicles—buses, light rail, and street cars—streams into the streets and contends with heavy traffic congestion, double parked vehicles, construction, and overcrowding of transit vehicles. Most Muni transit lines operate in mixed traffic, sharing lanes with cars, delivery trucks and bicycles. Lack of transit only lanes is one of the largest sources of the system's problems with time. Furthermore, a shortage of working vehicles, an aging fleet, and continual maintenance problems deepen Muni's service difficulties and create frequent delays. Initiatives to increase the speed and on-time performance face continual funding shortages. In short, Muni's problems with time are structural—they are an effect of political stalemate and persistent, nation-wide disinvestment in public services (Henderson 2013). Nevertheless, in San Francisco, riders, media and city officials often single out the

transit drivers and their labor union as the cause of Muni's poor performance. In public discourse in San Francisco, Muni's problems with time are framed as stemming from the drivers' work practices, pay and benefits, and union protections.

In what follows, I provide a conceptual framing for how I understand Muni's problems with time—and responses to these problems—in relation to neoliberal transformations in the political economy of San Francisco and the region. I begin by describing the demands for a faster and more punctual transit system, and how these demands reveal competing conceptions of urban publics and the social good at play in the politics of scheduling in transit system. I then argue that the intensive demand for a faster moving transit system leads to the design and enforcement of transit schedules that the drivers cannot actually meet. These schedules result in drivers getting blamed for their inability to meet the demand. The configuration of demand and public blame leads to exceptionally difficult working conditions for the drivers, and drivers often articulate the tension of their position in terms of harmful mental and physical stress. I conclude by exploring how the public comes to blame Muni's failures of time on transit drivers, their work practices, and their union contract, rather than a range of other structural and budgetary problems with the system. Public blame has taken the form of policy initiatives aimed at reducing transit worker pay and political power, as well as constant verbal and physical assaults from the riding public. I argue that the expansion of speed and productivity as metrics for assessing city governance has resulted in a fracturing of the urban public, opposing the needs of transit dependent riders against the business classes, and pitting riders against the drivers.

Conceptual Framing

Accusations of lateness and slowness reflect and organize power and value in the urban public sphere. Categories of time and space are constructed through historically specific social and material practices, even though they are often taken as objective or natural categories (Bourdieu 1990, Adam 1990, Gell 1992). Furthermore, state power, and the power of capital, are derived from the ways that time and space are defined in social practice (Harvey 1990a). Anthropologists have understood constructions and uses of time to be key part of the state's project of legitimizing itself and its use of power (Greenhouse 1996). Throughout this chapter, I describe the construction of time in the city through schedules, temporal demands, and economic accountings in minutes and seconds. However, Muni's problem with time is also a problem with space—a matter of how the city's spaces are designed, used and defined as public or private domains. *Speed* and slowness are measures of time along with space.

Social scientists have explored historically and culturally specific time-space constructions in a wide range of social and material practices such as agricultural activities, traveling, family lineage, religious practice and capitalist production (Munn 1992, Durkheim and Fields 1995, Marx and Mandel 1992, Thompson 1967). In the anthropological literature, *time-reckoning* refers to the use of external reference points in the counting of time—whether it be the sun's motion, calendric categories, periodized activities, events, schedules or clocks. Time-reckoning is an orientation towards time which entails "relating the actor's speed to some defined standard of timing" (Munn 1992:104). Thus, time-reckoning opens the possibility of being on-time, early or late.

Practices of time telling are also forms of social discipline, reproducing the social order by assigning people and activities to particular times and places. As I demonstrate,

the failure of the Muni transit system to adhere to planned schedules provokes public disapproval of the system and discipline directed at the drivers. The rise of clock time in the 19th and 20th century urban West was associated with the intensification of industrial processes, and an increasingly fine-grained accounting of time (Marx and Mandel 1992, Thompson 1967, Harvey 1990a). Marxist scholars have linked the ever-increasing need for productivity under capitalism with new modes of time telling, and with social discipline leading to increased working times. In David Harvey's (2010) reading of Karl Marx's history of the working day, he argues that the inculcation of time discipline was a central aspect of socializing the population of Britain into wage laborers. E.P. Thompson (1967) argues that the widespread contemporary acquiescence to time discipline is not an inevitable consequence of industrial wage labor relations, but rather required that a time-sense associated with the clock be instilled through social discipline. Thompson argues that this discipline extends beyond factory or workshop into social and domestic life, and becomes part of a broader cultural emphasis on a work ethic and a moral orientation towards time. Schools and families also were inculcated with a moral experience of time and regularity where, for instance, getting up early is a sign of both good moral character and industriousness. Thompson proposed that time discipline was initially externally enforced, but was internalized by the English labor force by the end of the 18th century.

Social transformations entail changes in conceptions of time and space. Scholars have given much attention to time-space changes associated with capitalism, while other theorists have emphasized the impacts of technological change, especially new communication and transport systems (Castells 1991, Schivelbusch 1987). Moreover, imperial expansion involved the imposition of new concepts of time and space. The

centrality of time-discipline to colonial orders and the functioning of capitalism is evident in colonial administrators' frequent complaints when colonized groups do not conform to the timing of the "normal working day" (Harvey 2010). While time-space categories have been extended and transformed along with a range of concerns about ordering social life, the demands of capitalism have been primary. As Harvey writes, "…Public definitions of time and space throughout much of the contemporary world have been imposed in the course of capitalist development" (1990a:419).

A central transformation in contemporary time-space experience and categories is the *speeding up* of the pace of life. Theorists such as Paul Virilio (Virilio and Armitage 2001) and William Connolly (2002) posit manifold causes of the increased pace of life and the experience of speed as a contemporary condition, often citing new media and computer technology as key forces. Harvey's (1990b) influential conception of "time-space compression," once again, situates transformations in the capitalist economy as the central causal mechanism leading to radically foreshortened time horizons. Capitalism—especially under conditions of post-Fordist production—has an ever increasing need for a faster pace of production and circulation of capital and commodities, and remakes the world through this process.

The demand for faster paced production and circulation translates into a demand for greater mobility of persons, information, capital and commodities. In urban settings, roads and transit lines are the central channels of mobility. As geographer Jason Henderson (2013) writes, when the capitalist economy expands, "Improving speed and access of transportation systems becomes synonymous with economic growth and individual advancement. 'Better' mobility is measured in terms of, and conflated with, higher speed and greater spatial range" (24).

We can understand the institutionalization of temporalities generative of capital circulation, markets, and value as part of a state strategy of self-legitimation (Greenhouse 1996) under conditions of neoliberal capital, where the power and rational of the state is defined by it relationship to the market and the flow of finance capital (Comaroff and Comaroff 2001). With the rise of neoliberal city governance, economic productivity becomes a central lens and metric through which movement in the urban public sphere is assessed and contested.

San Francisco has second highest percentage of residents dependent on public transit in the United States, following only New York City. Compared to other transit systems, Muni has one of the highest proportions of middle- and upper-income riders (SFMTA 2006). Arising from the density and diversity of transit users in the city are competing notions of what better mobility should look like. Progressive coalitions promote a conception of Muni transit as a public service or social good and have been successful in expanding access to underserved residents including youth, elderly, disabled and low income riders. The vision of Muni as a social good advances collective solutions to its time problem, including democratic planning and higher taxation on capital.

Neoliberal governance and planning target transit drivers and their labor union with anti-union campaigns and public blame for Muni's problem with time. Neoliberalism is a political economic rationality, orchestrated by state entities, which privileges a market logic for understanding and managing societies (Harvey 2005, Ong 2006, Wacquant 2012). Neoliberal governance is generally associated with the recapturing of public state functions for the ends of private capital, and with the flexibilization of the workforce and the undermining of labor unions. In San Francisco, a

neoliberal vision of transit is promoted by a coalition of downtown businesses, real estate interests, and professional workers who make demands for more narrow access to faster and timelier transportation through privatization or the creation of premium rapid networks. The demand for better service at Muni—for increased speed and timeliness—has been channeled into a persistent focus on the drivers' productivity, work ethics, and pay. My ethnographic research finds that drivers are put in a position of being expected to meet impossible time demands and subjected to racially inflected social discipline for their failure to meet the demand.

Locating San Francisco's Transit Workers

Muni was founded at the end of 1912, after voters approved public funding for the agency in response to the private monopoly ownership of transit lines. Since the 1960s, employment at Muni and membership in the TWU 250-A has been a "path to the middle class" for African Americans in the Bay Area (Cothran 1995). The first African American city employee in San Francisco, Audley Cole, was hired by Muni in 1941 (Broussard 1993), and in 1944 the poet Maya Angelou became Muni's first African American streetcar conductor (Gillespie et al. 2008).[6] By the 1970s, the TWU was associated with historically African American neighborhoods in San Francisco, such as the Bayview, and the union gained political power through coalitions with African American community organizations.[7] One Muni employee told me:

6 Angelou recounted in an autobiography that there was one African American man working for the agency before her. He was passing as white and was subsequently fired for lying about his race on his application (Angelou 2013).

7 Interview with former TWU-250A President Ray Antonio.

> Thirty years ago [early 1980s], the buses were basically all African American drivers. They all came from the same neighborhood and it was a family thing. It was like your whole family would be a bus driver [...] Their families have been here for quite a few generations and have been in the union for more than one generation. The first to get a job at Muni is usually the first to be in the middle class. It was a very active choice to work at Muni and it was something that they aspired to do.

In recent years, the demographics of the workers in the system have gradually shifted, as the agency hired more Asian American and Latino workers. The occupation remains racialized as non-white, with whites making up about 10-15% and African Americans about half of the workforce, even while the African American population in San Francisco decreased to 6.1% of the city's total population in 2010. With rapidly rising housing prices in San Francisco since the late 1990s, many workers were forced to move to neighboring cities, weakening the union's political influence and community ties. Through the TWU's strong labor contract with the city, employees remain some of the most highly paid transit workers in the United States. Yet the cost of living in San Francisco is one of the highest in the country and is unaffordable for many Muni employees.

Through fieldwork, I examined both the transit system workplace and the public, political discourse about the transit system's performance. Over the course of eight months from 2012-2013, I conducted 14 semi-structured interviews with transportation workers (four identified as African American men, two as African American women, three as white men, two as Asian American men and one as a Latina woman) and seven

semi-structured interviews with managers and city planners (five identified as white men, one as an African American woman, and one as an Asian American woman). I also conducted four interviews with union officials and three interviews with labor activists. Interviewees were selected through snowball sampling. During the same time period, I conducted ethnographic observation about one day per week in the transportation system by visiting system divisions and riding on selected bus and train lines. I chose bus and train lines to ride on with the aim of observing a variety of work experiences with respect to traffic and passenger density, passenger demographics, driver seniority, and equipment type (bus, train, cable car). I had many short and informal conversations with workers during breaks, on call periods, and sometimes while they drove, from which I also derive much of the material for this chapter. The interviews and observations with drivers allowed me to learn how the drivers understand and experience the demands to meet the schedule, as well as their perceptions of barriers to keeping the system working according to schedule. The interviews with planners and managers provided insight into how the transit schedules are designed and how political demands impact scheduling policy.

To assess public discourse on the transit system's performance, I observed public meetings of the San Francisco Municipal Transportation Agency, including the monthly meetings of the Board of Directors and other meetings where public comments are taken. Furthermore, I conducted a review of newspaper articles and of comment sections of on-line news articles relevant to the topic of Muni service delivery, including its speed and on-time performance.

While doing fieldwork, I introduced myself as a student from a nearby university conducting research about stress in the workplace and health. This often elicited

reactions of curiosity and requests for more information. Stress on the job is a common topic of conversation among the drivers. My first visit to a Muni division was for an Operator of the Month ceremony, where six or seven employees were given awards for their work at Muni. When each operator was given their award, the presenter asked, "What is your secret for dealing with the stress?" A driver receiving an award who had been at Muni for 31 years said, "You just have to start the day knowing what you have to do, what it's going to be like, do it, and then leave it behind when you go home." Another award recipient jokingly said, "If I tell my secret, someone might take my job." Given the attention to stress, when I was introduced to drivers, most readily discussed their experiences of working and the stresses they encounter. Some drivers and managers asked if I was going to be able to help the situation. Several workers expressed concern that I would inform management of their statements and activities and create further surveillance of their work. This suspicion reflected an ongoing mistrust between the union and the management. More often, however, drivers had much to say about transportation work, and the unrealistic schedules were a ubiquitous concern.

When I visited the bus divisions (as opposed to the street car and cable car divisions), I was often the only white person in the building, with both the drivers and the managers being mostly African American, Asian American and Latino. At the cable car division and the divisions with light rail and street cars, there were significantly more white drivers.

As part of the legacy of powerful labor organizations in San Francisco, the transit union has had strong labor contracts and protections since the 1960s. The more recent neoliberal trend in urban governance has weakened the position of collective labor, and the drivers' middle class wages now define them, in media and political discourse, as

overpaid and underproductive. Racial difference undergirds claims to low productivity and drivers are often represented as lazy, overweight and slow, and accused of taking advantage of the system through excessive benefits and protections. These racialized representations define Muni drivers as both fundamentally unproductive and dependent on public labor contracts, which corresponds to the rightwing portrayal of public workers as the new "welfare queens" (Collins 2011). These representations are found in a range of sites including the transit system itself, the news media, political discourses of elected officials, public policy reports, urban planning organizations, and a variety of transit rider forums and publications.

Urban Publics and Productivity

Efficiency has long been a central concern in transit planning. How many people does the system move per hour? At what cost? Recently there has been an extension of productivity metrics beyond the bounded sphere of technocratic planning—about routes and vehicle numbers—to the political and moral assessments about the management of the public system itself. The increasing scope of the productivity metric in urban planning and public discourse about Muni transit is associated with a neoliberal trend in urban governance. In the neoliberal perspective, as Henderson (2013) writes, "As part of the critical infrastructure for the production and circulation of capital, transit must be recaptured from progressive policies that envision the system as a social service and instead optimized for the function of the private market and to enhance the value of private property" (191). In line with the neoliberal trend, city officials in San Francisco increasingly assess public transit, along with all public infrastructure, in terms of efficiency and by its contribution to the productivity of private capital.

The system's speed is a central factor in determining its productivity. Within the extended productivity metric, Muni's slow speeds are seen as undercutting the efficiency of the system as well as the production of value within the economy at large. In San Francisco, advocacy for faster transit speeds has worked in tandem with the neoliberal trends, often passing over concerns about accessibility for transit dependent residents and reducing the social service function of the public transit system. Furthermore, city officials and policy organizations consistently foreground the high cost and low productivity of the drivers, even while a wide range of government offices, planning policies, and urban publics are implicated in causing Muni's slow speeds.

City officials and transit planners often claim that Muni's productivity needs to increase as a solution to the web of entangled problems that has been dubbed "Muni's downward spiral." At a recent city hall meeting, an elected official summarized the downward spiral as follows:

> When service is unreliable, people are delayed and frustrated in getting where they are going. Leading to negative economic impacts and reduced quality of life. […] When Muni struggles it is at risk of going in a downward spiral. Ridership will suffer, resulting in lower fare collection, and public confidence in the system goes down making it harder to convince our city to invest in the system. More people drive, which results in increased congestion and slower Muni travel times.

As Muni slows, more people drive, crowding the streets, and resulting in even slower travel. The feared result of this vicious cycle is a transit system that is slow, crowded, and only used by those who rely on public transit the most—youth, senior,

disabled and low-income city residents—while business commuters drive and use other forms of private transport. Faster operating speeds are thought to be the solution: decreasing costs per trip, attracting riders away from their cars, and reducing traffic.

In 2005, the San Francisco Planning and Urban Research Association (SPUR),[8] an influential urban planning and transportation policy organization aligned with downtown business associations, released a report entitled "Reversing Muni's Downward Spiral" (SPUR 2005) which outlines a full range of structural problems with Muni governance, financing and planning. The report's conclusion is encompassed in the heading, "THE SOLUTION: 25 PERCENT FASTER MUNI." The authors write, "To reduce costs, Muni must become more efficient. Doing more with less (or much more with the same number of drivers) is simple—Muni must move faster. A fast transit system costs less to operate because it has higher productivity—measured by the number of people a bus or streetcar carries for each hour it operates." Later, in 2010, the transit agency itself produced a report stating that a one mile per hour increase in the system (to nine miles per hour) could save the agency $76 million a year (Reisman 2010b).

Through the metric of economic productivity, speed and cost stand in for each other. The cost of labor is translated into a loss in system speed and performance. While the report focuses on structural problems, when they turn to solutions, the authors emphasize the drivers. Under their plan for "How to Make Muni Faster," the SPUR's report included recommendations that the management "adjust" union work rules and curb workers' salaries and benefits alongside proposals to change traffic lights, relocate

8 SPUR has long been one of the most influential actors in San Francisco transit politics. The organization is associated with downtown business associations, real estate interests, and a range of researchers and planners, and holds a complex mix of progressive and neoliberal visions for city transit (Henderson 2013). While promoting a "livability" agenda advocating increased public transit, walking and biking, SPUR has consistently identified the Muni drivers and their labor union as a central obstacle to solving the transit system's problem with time.

transit stops, and reduce double parking. The cost of paying the drivers is directly associated with the inability to get the transit system moving faster. The report states: "In the past, Muni was able to provide much more service because the cost of each employee was so much lower. But now employees are expensive."[9] The money spent on labor could instead be spent on improvements to traffic design and system efficiency. In the section entitled, "Work with unions to reduce structural costs," the authors argue that the "most important step" is to amend the city charter to remove the drivers' guaranteed wages, giving management more leverage during contract negotiations. The report states, "Though certain changes may run counter to the unions' short-term interests, it is in everyone's long-term interest to reduce unnecessary costs and improve transit service quality enough to boost productivity…" In addition to the report, the director of SPUR has stated that "the first and foremost concern for Muni should be labor reform" (cited in Henderson 2013:176).

The ambition to tether Muni's performance to San Francisco's economic productivity was made explicit at a recent meeting of the Board of Supervisors Land Use & Economic Development Committee. Elected officials had requested that the city economist produce a report quantifying the economic impacts of Muni delays. Until this point, in May 2013, there had not been analyses linking Muni's problem with time with negative impacts on the productivity of the city's economy. Supervisor Scott Weiner explained the motivation for the study by stating, "[A] lot of people, when there is a problem in the system and there are delays, people think, god, this is having, you know, an economic productivity impact and so this is as far as I know the first time that we have done this analysis and I think that it is a good start." The analysis was limited to

9 This is a result of increased costs of retirement, health benefits and workers compensation.

the impact of delays caused only by breakdowns during peak, weekday hours. The economist found that riders were delayed 86,000 hours during the previous month of April, which he translated into a $4.2 million economic loss for the month, and a $50 million impact for the year. The officials repeated several times that this estimate was "conservative" as it only took account of delays caused by maintenance problems during rush hour. The accuracy of the number ($50 million) did not matter so much as the symbolic transformation of the experience of time delay on Muni into economic loss. While this was the first analysis linking San Francisco's broader economy to Muni's problem with time, minutes and even seconds in the Muni system have long been assiduously counted in monetary terms.

Before the presentation of the economic analysis, the officials asked the Director of Muni, John Haley, to present a "report card," which showed that Muni was not meeting many of its service standards. The on-time performance was 58% for the year, and the Director said of the noteworthy findings in the report, "One is the on time performance, and clearly, this is one that needs improvement." At the end of the hearing, the Director of Transportation for San Francisco, Ed Reiskin, brought together the economic analysis and report card by merging concerns about the economy and quality of life, saying, "I think that making the connection between the transportation system and the economy is a good way [...] to think about how investments that we can make can improve the performance of the system that in turn can enhance the economy and improve the quality of life for the people in the city." This statement reflects a conception of society in which the productivity of the economy is the essential social good offered by the transit system.

A progressive political movement in San Francisco has long advanced a social service mission of Muni in which public transit is understood as a central mechanism for increasing access to resources and opportunities for low income residents, people of color, disable people, youth and seniors. The aim of increasing access has resulted in Muni being one of the densest transit networks in the nation, with stops located within two blocks of nearly every resident. Moreover, Muni was one of the first transit agencies in the country to build a lift-equipped bus fleet and provide a range of disabled services.[10] An array of community organizations and politicians has argued that an emphasis on transit speed and productivity has elided the social service mission of the transit system. Progressive community-based organizations explicitly link the productivity metric to the erosion of equity in the urban public. For example, members of an active San Francisco community organization claim that, in debates about how to best run Muni, "*Equity gets pitted against efficiency*, and the interests of working-class communities who depend on public transit are pitted against those of professional and managerial commuters and 'choice riders'" (POWER 2012:2 my emphasis).

Progressives continue to have a substantial impact on transit planning in the city, but recent years have seen a split among progressives associated, on the one hand, with ethnic-based and working class community organizing and, on the other hand, with a class of professional workers. Many San Francisco progressives are highly educated tech workers and professionals who advocate an urban "livability" political agenda with strong support for public transportation. Yet they often join landowners, real estate

10 Muni implemented disabled services more than a decade before the Americans with Disabilities Act (1990). Managers and some drivers often mentioned to me that Muni was the first bus system to build in wheel chair lifts.

developers, and neoliberal tech workers in the view that labor unions obstruct innovation and efficiency (Henderson 2013).

At the end of the meeting of the Board of Supervisors, the first person to make a public comment was an elderly man. He stood at the podium and spoke slowly, "I am a senior. I would say that the drivers need to be trained afresh, so that when they have to deal with the traveling public, especially seniors, that they would be more respectful [...] I have seen time and time again that seniors trying to get to the bus and the bus driver is so inconsiderate, to not even take a few extra moments to wait for that senior." As these "extra moments" are increasingly quantified as losses for the San Francisco economy, the social service function of the transit system is excluded from political calculation. The rider's appeal for more time for seniors to get on the bus is directed towards the work practices of the drivers, who are accused of being disrespectful. This rider's accusation that the drivers are at fault for his inaccessibility to the transit vehicles reveals the power of the neoliberal logic to shunt attention and responsibility from the systemic sources of time pressure to the individual responsibility of the driver. Later in this chapter, I show how city-wide mobilizations of anti-worker sentiment underlies this shift in attention from collective and structural circumstances to the work practice of the drivers.

Riding on the line

The transit workers' perspectives are often elided in public discourse of Muni's problem with time. Transit workers describe operating passenger vehicles in urban environments as a highly stressful activity. The time pressure, constant vigilance, attention to the riding public, and the perpetual threat of violence and assault create an

exceptionally difficult working environment. This highly stressful environment has damaging effects on drivers' health. Scientists throughout the world have shown that urban transit workers have higher rates of stress-related disorder than most other occupations (Winkleby et al. 1988, Evans and Johansson 1998, Tse et al. 2006).[11] Drivers in many cities have exceptionally high rates of hypertension, heart disease, stroke, musculoskeletal disorders, and depression. Studies of Muni drivers, for example, have shown that drivers' hypertension is closely linked to number of years on the job (Ragland et al. 1997).[12] As I discuss in Chapter 4, many health scientists throughout the world claim that urban transit work is perhaps the most stressful modern occupation.

Drivers often told me that not everyone can do the job, and indeed many new drivers do not stay for long. The agency's turnover rate and sick leave rates are so high that there is a continual shortage of trained drivers. As one driver told me, while hitting his stomach with his fist, "You need a strong stomach to do this job. And I have one." Drivers-in-training are required to go on "ride alongs" with experienced drivers. There have been many instances of new hires leaving training after seeing the difficulties of the job on their first ride along.

On a Thursday afternoon, I arrived at the Flynn Division a little before 3:00pm. It is a massive building with corrugated metal walls that takes up most of a city block. I walked into the barn section of the building, an immense room several stories high, past long lines of buses parked nose to tail. The building houses about 124 diesel buses, which in half an hour will start streaming out onto the streets and making runs throughout most of the city.

11 See Chapter 4

12 See Chapter 3

I walked into the office where I had planned to meet Carol, a transit dispatcher, before her shift. I met Carol,[13] an African American woman in her fifties, a week before when I visited a different Muni division. She drove buses in San Francisco for ten years before becoming a dispatcher. When she learned that I was doing research about transit workers and health she said, "You know they don't expect us to even get our first retirement check. They don't expect us to live long enough and they know that."

There was a man sitting at the desk finishing up his shift dispatching the buses. Carol came in and introduced me and told him that I was from the university and was there to learn about stress at Muni. She wanted to find a busy line for me to ride on. Hearing this, he stood up and dropped a stack of papers onto the desk and said, "You will not *really* see stress going out on the bus line! If you want to know about stress, you have to come back here everyday for 12 hours, and keep driving until late into the night. Then maybe you will start to see what the stress of this is!"

Carol nodded her head and began sorting through bundles of printed bus schedules and attaching the badge numbers of the drivers that go with the shift. Everyday, she coordinates the drivers signed up to work that day with the transit schedules handed down from the scheduling office. She wanted to send me out with a driver on the 38-Geary line so I could talk to the driver about working on one of the busiest lines in the city. The 38-Geary and the 38-Limited together see more than 50,000 boardings per day. On other days, Carol wanted me to ride on the "ghetto" lines and the lines that carry the downtown business passengers. "I'm very detail oriented," she said, "I want you to ride all the different lines."

13 All names in this dissertation are pseudonyms.

The stack of schedules is for the afternoon pullout, when nearly all the working buses at the division go onto the streets to start moving passengers for the evening commute. By the end of the pullout, most of the working buses have left, and even just a couple of mechanical problems can send a line out of schedule the rest of the day. Carol showed me a schedule for a driver named Clifford, scheduled for a 3:57pm pullout on the 38-Geary line. The printed schedule had his report to work time at 3:42pm. This gives him fifteen minutes to check over the bus and gather everything he needs for his shift including water and food. The schedule has him pulling the bus back into the division after 1:00am.

Carol went and made me a copy of Clifford's schedule. She put it down on the table in front of me and said "You watch," pointing to the time points on the schedule, "You watch as he starts getting close to here [pointing to the end of the line]. The closer he gets, the further he'll be from the time. He'll be trying, but he won't get there on-time. I bet he won't get that break." He was scheduled for a nine-minute break at the end of the first hour of driving.

A few minutes later Clifford walked into the office to pick up his schedule. He was a large African American man, at least six-foot-three and 250 pounds. After completing an inspection of the bus, we drove straight over to the VA Medical Center by Ocean Beach on the opposite side of the city without picking up any passengers. Clifford's shift starts once we get there.

Management had recently shaved off a few minutes from the scheduled trip back into town. Transit planners reformulate the schedules four times a year using computer models calibrated to new information about passenger counts and traffic speeds throughout the city. Clifford could not understand why the trip was even shorter in this

most recent round. He now has 54 minutes to get to the Transbay Terminal on the other side of the city. “You probably can’t even do that in a car in this traffic,” he said. “Someone should look if these schedules are illegal. They expect you to drive so fast that it must be illegal.” Clifford believes that the management expects him to drive faster than is possible in such a large vehicle on the poorly maintained and busy streets. He went on to say, “And you know what else is illegal? You are supposed to get 15 minute breaks every two hours but I barely get enough time to smoke and go to the bathroom before I have to turn around.”

On Muni’s 100th anniversary in 2012, the *New York Times* published an article about how the transit system is slower today than it was 100 years ago. In 1920, this trip across town on the A-line street car took 35 minutes (Elinson 2012). Now, a similar trip on the 38-Geary is scheduled to take 54 minutes, and often takes longer.

When we started the trip at the VA Medical Center, a man in a wheelchair got on, and the bus filled with the smell of soiled clothing as we waited for several more people to board. Clifford asked him, “What is your stop?” The man responded, “Leavenworth. Thank you sir.”

The bus filled with passengers as we made our way eastward on Geary Street. Most of the time, Clifford just looked forward and drove, greeting some passengers that said hello. He learned a long time ago not to say hello to passengers if they do not initiate the greeting. On my trip on the 38-Geary line, there were quite a few elderly people with bags and carts. When an elderly person boarded the bus, Clifford waited, looking in the rearview mirror, until the person found a seat before he moved the bus again. The passengers’ safety is always on his mind, he said. He is responsible for anything that happens within 50 feet of the bus. “Never open the door for runners

[people running to catch the bus]," he told me, "if they get hurt it's your fault." To limit legal liability, Muni's policy is that drivers must remain seated at all times, and never get up to help passengers. Many drivers, including Clifford, do anyway. One driver was fired for getting out of his seat to break up a fight between high school students, but was later reinstated. Another driver told me of the regret he felt when he did not get up for an elderly man teetering in the stairwell, who then fell and broke his hip.

When we reached the Leavenworth stop, the bus was nearly full, with little standing room available. Clifford extended the automatic wheelchair lift and waited for the man from the VA Medical Center to make it to the front of the crowed bus. The crowd slowly shifted to make room for him to leave, and three minutes later the wheel chair lift was pulled in and the bus was moving again. Drivers often complained that management and schedulers took no account of how long it takes to assist someone in a wheelchair.

I pulled out the schedule that Carol had given me. The schedule lists target time points for every four or five stops on the line. I looked over and could see that Clifford had the same schedule clipped to the dashboard in front of him. The upcoming time point was for O'Farrell and Powell Streets, at 5:22pm. I looked at my phone and it was already 5:33pm. We were well behind schedule, as both Carol and Clifford had predicted. When we arrived at the end of the line at 5:44, people started boarding immediately and Clifford turned the bus around without getting out of his seat. We did not need a break yet, he said, and joked that I should not drink too much because it'll be a while before we get back to the Medical Center.

On the five more trips in and out of town, I saw a range of passenger and traffic hassles slowing down the buses including double parked vehicles, construction delays,

and elderly and disabled passengers requiring extra time to pay their fare and find a seat. While we were driving through the Richmond District, a man angrily yelled at a woman storing her groceries on the seat next to her. The altercation lasted only a few seconds and I saw Clifford briefly glance in the rearview mirror. We only made up time and caught up to the schedule by skipping breaks; we took three short, several minute breaks during the whole shift.

This was a typical day, yet I learned that alarming and sometimes dangerous events were also part of the everyday for drivers. During the time that I did fieldwork at Muni, I saw many arguments amongst passengers and threatening and violent language directed at drivers. Facing belligerent and intoxicated riders is a daily experience. Drivers told me of witnessing shootings, stabbings, and accidents and being victims of verbal and physical assaults. The week that I rode on Clifford's bus, the drivers back at the Flynn Division spoke about what seemed like a recent wave of people jumping out of moving transit vehicles. "I looked back in the mirror and the guy was laying facedown in the road," one driver said. When that happens, the driver needs to stop the bus and wait for an inspector to review the situation.

Impossible schedules

A common refrain I heard from drivers was, as one driver put it, "Whoever makes the schedules, they've never been out there." The schedules are often described as being *not realistic*. A union shop steward named John said, "They make the schedule based on someone zipping around as fast as they can." The schedules do not reflect the reality of dense traffic and crowded vehicles that the drivers face. The dissonance between on-the-ground reality and planned schedules takes a toll on drivers.

On a visit to a bus division, I met a shop steward named John who urges drivers not to rush. “It’s like people are brainwashed,” he said, “They think that they have to rush and rush in order to stay on time. But it’s impossible. I tell the operators, they are on time if they show up to the barn on time, and sign in on time. What happens out there [pointing to the street], they can’t do anything about.” Some drivers’ continual determination to meet the schedule reflects the internalization of time discipline remarked upon by E.P. Thompson. Most drivers worked to meet the schedule in order to preserve their break times and avoid citations from management. However, as the shop steward remarked, drivers are inculcated into the ethos of rushing, and indeed many pride themselves on being on-time. As one white driver said, “I am a professional operator. This is not an easy job and you have to be a professional. You have to know how to deal with everything and keep an eye on the time. I meet the schedule most of the time.” Still others said that they did not pay much attention to the schedule because it is impossible to follow, usually citing the safety of the riders as their foremost concern.

Drivers feel pressure from management to rush, but they also rush to get a bathroom break. Kelly, a driver with fourteen years of experience, has had difficulty finding time for a bathroom break in the schedule. She told me, “[Management] would rather have you pissing on yourself than missing the schedule.” When Kelly drives the bus back into the Woods Division where she works, she parks the bus and runs as fast as she can to the bathroom. Kelly has both hypertension and diabetes and her medications make her need to use the bathroom. She only takes half of the diabetes medication her doctor prescribes because of the rarity of bathroom breaks.

Finding time to use the bathroom is a major issue for most drivers. Some drivers told me about peeing in bottles or on the curb when they could not make it to a

bathroom in time. Kelly said, “Please don’t laugh at me, but one time I was on the line and I wasn’t rushing. I finally got to that bathroom on Main Street. I had to go. I ran out of the bus and started banging on the bathroom door. Someone was in there and I couldn’t hold it anymore and I didn’t have a change of clothes.” If a driver is running behind schedule but needs to take a bathroom break, they have to call management on the radio and ask for permission, even if it is a scheduled break. I met a pregnant woman who has to take her scheduled bathroom breaks at the end of each trip. Since she often runs behind schedule, when she gets to the end of the line she calls management. In telling me the story, she frowned and said, “I pick up the phone and I say, ‘I’m sorry, I’m sorry. I really have to go to the bathroom.’”

A few weeks after I met Kelly, we were again sitting at the Division, this time chatting with the shop steward. The shop steward said to Kelly, “If you need to take a break, just do it. If it comes down to it, and you get written up for going to the bathroom, I can go in and take a lighter to that write up, burn it up.” Kelly said, “Okay. If I need to, I will do that.” A couple weeks before this conversation, Kelly rushed back to the Division for a bathroom emergency. She pulled in five minutes ahead of schedule and management wrote her up. Arriving more than two minutes early to any stop is grounds for a citation. While running behind schedule results in loss of breaks and anger from the riding public, it does not elicit punitive measures unless management believe the driver his- or herself is responsible for compromising the schedule.

Now Kelly is only one citation away from a suspension. The next time I saw Kelly, she held up a lemonade and said, “I’m drinking because I won’t be out on the line today.” I asked her if she had taken the shop steward’s advice and called in any bathroom breaks, and she replied, “I just don’t drink anything when I know I’m going to

be out there." The driver's labor union had become increasingly disorganized during recent years, and Kelly did not trust that the union would be able to protect her in the case that management decided to suspend her for deviating from the schedule for a bathroom break.

Drivers rarely follow the shop steward's advice and often give in to the pressure from management to rush. On another occasion, when I saw John at a meeting, I told him that I thought drivers felt a lot of pressure to meet the schedule. He repeated that it's a problem of "brainwashing," and drivers not realizing that it is in their interest to work at a realistic pace. If a driver rushes to stay on schedule by speeding or aggressive driving or giving up their break, John said, "You give them that time!" Planners see that the driver can make the schedule, so they use that information and shave off a couple minutes on the next round of scheduling.

John and other union members I spoke with also expressed concern that the pressure from management and the riders to rush to meet the schedule is a threat to public safety. In response to accidents, Muni management has repeatedly blamed drivers for unsafe practices, while the union blames the considerable pressure to stick to the schedule. For instance, in 2009, a driver blacked out from a heart condition while operating a light rail vehicle through a tunnel and it crashed into a parked vehicle at the West Portal Station. The accident injured 48 people, with 24 taken to the hospital by ambulance. While traveling through tunnels, safety regulations instruct drivers to operate the vehicles in automatic mode, where a computer sets the speed, but the driver had switched the controls to manual in order to meet the schedule. The union president criticized the management for instigating unsafe driving. "The unspoken rule is that

you're supposed to do it [switch to manual mode]," the union president said. "At least for the last three to four years, they've basically just said: 'Do it'" (Cabanatuan 2009).

Making the Schedule

Why do the planners design schedules that are so difficult to follow? On my first visit to the transit planning office, I signed in at front desk security, and rode the elevator to the twelfth floor. I planned to meet Bill, a planner with a Master's degree in City Planning, who had been at the agency for seven years. His office had sweeping views of the city.

In Bill's perspective, "The scheduler doesn't care about the [labor] policies. They just need to know them so they can program them in." He continued, "I think that a lot of people here are more rational and just purely technocratic without putting much thought into the other side of it." Labor policies are determined through labor-management negotiations, and the planners' job is to account for the policies in their planning models. However, Bill admitted that "They [planners] really like the computer system to be free of all constraints so that it can be the most efficient thing possible." Formally, the planners and schedulers perform a politically neutral, "purely technocratic," task. At the same time, they strive to produce the most efficient system possible, and work rules regarding shift length and breaks are a consistent source of constraint for their modeling systems. As Bill went on to say, "The more constraints you have, the more narrow your solution space is." A computer system free of constraints assumes a completely flexible workforce willing to work a wide variety of shift lengths.

Planners understand the union's demands for regular, eight hour work shifts with breaks as constraints on their optimized modeling strategies. The union contract

stipulates that the majority of workers get paid for at least 8 hours per day. Another planner I spoke with said, “The more you can break shifts up overall the greater the efficiency of the schedule.” The union’s unwillingness to break up shifts results in an inefficient schedule.

The transit system has to deal with two peaks of commuters, one in the morning (6:00-9:00am) and one in the late afternoon (4:00-7:00pm). The management and planners want to hire part-time drivers to cover the peaks. However, the union contract historically stated that workers get paid for a minimum of 8 hours per day. To accommodate this demand, many route schedules (about 49% of weekday runs) have built-in standby time.

By speaking with other planners, I learned that there is significant pressure to cut the length of the time designated for a trip in order to reduce costs. The San Francisco city charter specifies the overall amount of service the transit system must provide the public (for instance by requiring that riders wait no more than 10 minutes for a vehicle during peak hours). Planners must provide this service, on paper, within the allocated budget. Planners ask, how many vehicles need to be running on a line in order to provide this level of service? A planner named Martin told me, “If that number goes up to 6.3 buses, you can’t have a third of a bus, so you’re at seven, and that’s a problem.” Planners commonly round down the number of buses, in this case to 6, leaving the drivers to deal with the deficit of time. He said, “So we need drivers who can drive the bus as safely, but as aggressively as possible.”

Martin continued, “So there is always this tension between trying to run the buses as fast as you can, because it saves a lot of money, and the drivers… So when your running time [the amount of time in the schedule] increases, it makes it easier for the

driver to make the schedule, but their costs go way up. So you are always trying to push the schedule as tight as you can." Through interviews with veteran employees in the scheduling department, I learned that designing the schedules as tightly as possible in order to save on costs is a long-standing practice at Muni. In the past, the union would often contest particular schedules that drivers felt were unreasonable. However, drivers and union officials reported that the disjuncture between the schedules handed down by management and the reality of the streets is larger than ever, and management has been successful in limiting the union's leverage in scheduling decisions.

As the organization and operation of the transit system is increasingly evaluated through metrics of economic productivity, it becomes ever more important to maintain the tight schedules and discipline the workers to adhere to the schedules. As David Harvey (1990b) argues, the progressive monetization of social relations leads to a compression of time and space. This entails a speeding up of political economic practices, and encourages a drive to "annihilate space through time and reduce turnover time [of capital]…"(307). When the movement of the transit vehicles is tied to the productivity of the economy, the relations of social service between the management, the drivers and the public are refigured as economic relations subjected to the demands for increased speed. As planners design more productive schedules, they imagine and require movement through the city that is well beyond what the material conditions of the city allow.

A different person from the planning department admitted that the system of planning schedules as tightly as possible is hard on the drivers. He said, "Basically we say, here's the schedule. Here's what you got to do, and if you don't do it we're going to

beat up on you. Because, ok, well what if some idiot decided to try to turn in front of a bus and you're stuck there for three minutes? Why is that your fault?"

I asked Bill why so many vehicles are late, and he responded, "Some things are the schedulers not updating the schedule enough. Some things are the driver is really not performing. Some things are traffic really is interfering too much, you know, it's hard to assign a cause of why you're not meeting your performance measure." Yet he acknowledged that planners often direct blame towards the labor union, stating, "Whenever you're criticized for not meeting the performance measures, blame the work rules. But I guess it's kind of like playing labor and the public off of each other." Once again, public frustration with slow and late transit is directed towards the drivers, placing the public at odds with the union.

Public Politics of Blame

Public blame for Muni's inefficiencies has been directed towards transit drivers through a political campaign aimed at decreasing drivers' salaries and the bargaining power of the union, and through verbal and physical assaults towards drivers. These forms of public blame towards drivers reflect racial antagonisms in the city.

In the wake of the 2008 U.S. economic crisis, Muni had a shrinking budget and began to cut service. Transit vehicles were slower and more crowded than ever. Muni management sought concessions from the Transport Workers Union to close the growing budget gap. Officials argued that Muni would have to raise fares unless the labor union agreed to concessions. The union's rank and file rejected a contract containing concessions, arguing that the concessions were too broad and that the

proposal decreased labor costs without considering any other sources of revenue (Henderson 2013:176).

Mayor Gavin Newsom, city officials, SPUR and Muni management all framed the budget crisis as a contest between the public interest and union wages. By 2010, there was growing public animosity towards the TWU. In response to widespread condemnation, the TWU staged a demonstration outside of city hall to protest what they saw as a concerted effort on the part of the Mayor and Board of Supervisors to pit the public and labor against each other. Union members held signs that read, "Operators are not to blame" and "Riders and Operators Unite." They chanted, "Where is the money? Where is the money?" and claimed that city hall had a lot of money, and should tax downtown businesses to gain revenue. As one protestor said, "What we need to start doing is asking, where is the money downtown? Because what they are doing is pitting us [riders and drivers] against one another." Union representatives made speeches about the shared interest of riders and drivers. One driver took the bullhorn and said, "As for the senior citizens, I know first hand how Mayor Gavin Newsom and the board of supervisors neglect the seniors in this city. We must come together as one and show them that we are a team."

Public resentment continued, and city politicians, along with SPUR, launched the "Fix Muni Now" campaign to put the transit operators' labor contract up for a vote. The campaign collected 75,000 signatures and successfully added the voter initiative titled "Proposition G: Transit Operator Wages" to the ballot. The proposition would revoke wage guarantees and reduce the union's bargaining power. Drivers' wages had been set by a formula guaranteeing automatic wage increases. This formula was codified in the city charter in 1967 through a voter proposition meant to assure labor peace and

optimize efficiency in the system by retaining professional drivers. Furthermore, Proposition G reduced the union's power to make scheduling and staffing decisions, stating that the union decisions must show "clear and convincing" evidence that the drivers' interests outweigh the public interest (Cabanatuan 2013). This stipulation echoes the popular portrayal of the drivers union as gaining resources and power at the temporal and monetary expense of the rider (Nevius 2010).

The largest donors to the campaign were familiar big business organizations including the Building Owners and Managers Association, the Chamber of Commerce, Committee on Jobs, and the Association of Realtors (Gordon 2010b). The proposition focused public attention almost exclusively on how to increase efficiency by extracting more from labor, rather than addressing traffic problems or speeding up boarding times. As a consequence of Proposition G, as Henderson writes, "drivers could be made to bear more responsibility for the time it took buses to move through the car traffic that slows Muni down" (2013:179).

Worker opposition to the campaign foregrounded racial and class divisions in the city. Muni's ridership has one of the highest average incomes of any public transit system in the country. The professional and creative classes who support progressive city planning policies had little sympathy for the drivers and their union (ibid.). Moreover, the proposition should be seen as part of a broader nation-wide attack on public sector labor unions, which portray union workers as lazy, privileged and responsible for city and state budget problems (Collins 2011). As one city official told me, "They get paid sixty or seventy thousand dollars, you know, twenty five to thirty dollars an hour, plus their overtime. And their benefits are a hundred percent of their

wages. So you're talking about a 125,000 dollar person. You need to do 125,000 dollars worth of work, and that isn't happening."

In San Francisco, drivers and union officials charged that the public attack on the workers' wages was racially motivated. As one driver said, the riders think "[we] are black people getting paid too much." While workers and union officials repeatedly pointed out the racist implications of white politicians singling out a group of largely African American workers, city officials and residents deeply resented the accusation.

Sean Elsbernd, the City Supervisor who led the Proposition G campaign, when confronted with charges that the campaign had racial undertones, responded that he was "disappointed by the type of discussion here." Another white City Supervisor criticized Elsbernd, stating, "If a white politician moves forward with something that negatively affects a predominantly African-American class, even if the intentions are righteous, you have to accept that there are racial undertones" (Reisman 2010a).

The SPUR director stated publicly that his aim with the "Fix Muni Now" campaign was not to scapegoat drivers, but rather to fix Muni's service problems. He said that the drivers deserve decent pay because, "Being a driver is a really hard job," but undercutting guaranteed salary levels was a way of incentivizing the union to negotiate different work rules (Rhodes 2010). Readers of the news report responded by having a heated debate online about whether or not driving is in fact a hard job, which further reflected the discourse of the public employee as a drain on public resources. One reader said, "I suppose since they have no education, no work ethic and no skills that yes not being able to drive a bus without getting in an accident must be very 'stressful and difficult' [—] that must be why there are so many fat, lazy bus drivers now on disability for their injuries from sitting on their butts doing nothing."

San Francisco Bay Guardian was one of the only news outlets to defend the drivers through the Proposition G campaign:

> The public rightly complains of buses not arriving on time, of being passed up while waiting at bus stops, of grumpy drivers and of other certainly legitimate matters. Naturally, they blame the drivers. But drivers do not make schedules. Under pressure to keep to the schedules made by others, they sometimes speed by waiting passengers. Sometimes they're slowed by heavy traffic, sometimes by problems with faulty, broken-down down buses or slowed by having to deal with violent passengers. Sometimes, managers making out the schedules don't properly anticipate such probable delays [Meister 2010].

Proposition G passed with 64% of the vote and, with their decreased bargaining power, the TWU gave concessions including the hiring of part-time drivers and wage freezes. The increased number of part-time drivers, along with an agreement where new employees pay into their pension while established employees do not, ushered in a two-tiered employment system at Muni. While the two-tiered system is seen as weakening the power of the union to act collectively, others believe that, with their wages on the table, the union might negotiate more aggressively. A man who led the scheduling department at Muni for nearly 20 years told me he was worried that the union would come to negotiations "with a phone book of what they want. They might come in there and ask for recovery time [scheduled break time], costing several million dollars." Furthermore, a 2013 court ruling struck down the portion of Proposition G which

required the union, in making staffing and scheduling decisions, to prove that their interests outweigh the public interest (Cabanatuan 2013).

Direct Assault

Muni's problem with time persists, and public blame continues to be directed towards drivers, often by direct verbal and physical attacks. Hostility from the public came up as a significant source of stress for nearly ever driver I spoke with. Many drivers ranked unpleasant or threatening encounters with riders above the demands of the schedules as the primary source of stress on the job. A 43-year-old Asian American driver said, "The people are very rude! They are definitely the hardest part of the job."

Difficulty meeting the schedule often leads to unpleasant interactions with the public. When vehicles are late and crowded, riders are more likely to act in offensive or violent ways. Drivers often told me that an offensive or disrespectful passenger can ruin their day. An African American driver with seventeen years of experience said, "My normal character is to be outgoing and friendly but I can't be that way here. You can be having a good day and then someone will just take that right away from you." This driver believes that conditions have worsened in recent years. "It's the construction and the traffic. And then buses are always crowded and the people are mad. It didn't used to be so bad."

Clifford, the driver on the 38-Geary line, as well as many other drivers, told me that the people can also be the best part of the job. Clifford said that he especially likes helping "old people and families with kids." Drivers spoke of regular riders who greet them and compliment their driving. An African American driver told me, "I am a civil servant. I do this job to help the people, to give them the service. The people come first.

Their safety is always on my mind." When drivers reported having good experiences on the job, in the majority of cases, they described helping riders. A 22-year veteran African American driver said, "I'm happy at the end of the day if I did a good job making sure that the elderly with bags got on and off the bus safely."

I interviewed a labor activist who connects the problem with time to racist perceptions of drivers and assaults:

> The structure of the job creates enormous hostility towards the drivers [...] They are late and it's not their fault. They are late and people yell at the drivers and threaten them, often with violence [...] I think part of the hostility of the San Francisco population towards the Muni drivers—the spitting, the assaults, the aggressive driving—I think it's a classist and racist problem embedded in the San Francisco psyche. This is apparent in the kinds of comments, 'I don't sit on my ass to make 60 thousand a year.'

Assaults on Muni drivers are a common occurrence. A recent article reported that a Muni driver gets assaulted every 3 1/2 days. In the article, a union official blames the media for a recent spike in violence, stating, "There has been a lot of negative information put out there about us by the media and management and we're starting to notice a real hostile reaction against our workers" (Reisman 2011).

Reader comments on the media coverage of violence towards drivers expose vicious attitudes underlying the violence. The Muni drivers' pay is often invoked as a justification for assault. As one commenter wrote, "Thats the price they have to pay if they want their 6 figure salary in a down economy." Another said, "Karma for all those

times i was left waiting for a bus that never came or arrived late making me late for work & school. There's a special place in hell for lazy MUNI drivers." A commenter followed up by writing, "All overweight workers should get a beating every once in a while."[14] Drivers are often exposed to these types of alarming comments, leading to a general perception of a hostile riding public.

Stories of spitting incidents are especially salient. While none of the drivers I spoke with told of being spat on themselves, stories of these incidents circulated regularly. I interviewed a psychologist who works for the city and sees employees after assaults. He estimated that a third of assaults involve drivers being spat on, which mirrors statistics released by New York City's transit system, where spitting incidents have had more public attention (Grynbaum 2010).[15]

Conclusion

In San Francisco, the pervasive political and economic demands for faster travel speeds and more timely transit service work to refigure the transit system from being a social service to being an engine of economic growth. In this transformation, productivity comes to serve as a central planning metric, and the productivity of the transit drivers, calculated on the basis of cost and speed, is targeted as a key cause of the transit system's time problems. Impossible-to-meet transit schedules are circulated and enforced, causing the drivers to be always-already-late. By being already-late, the transit drivers are represented as fundamentally unproductive. This construction of slowness

14 *San Francisco Examiner*, "Violence Against Muni Drivers Spikes." http://www.sfexaminer.com/sanfrancisco/violence-against-muni-drivers-spikes/Content?oid=2175596 Comments [Accessed February 21, 2014].

15 As the president of New York City's Local 100 of the TWU stated, "Our bus operators are spat upon with unnerving frequency" (Donohue 2011). New York's MTA plans to follow transit agencies in Boston, London, and Scotland where they distribute DNA tests to drivers with the hopes of prosecuting people committing these assaults.

and lateness as a problem of inefficient workers—rather than of structural problems with planning and management—results in untenable working conditions for the drivers, where they are under continual pressure to meet impossible time demands.

This chapter demonstrates how a demand for faster travel gets used in the neoliberal remaking of the urban public sphere. Social theorists have argued that categories of time, space and speed play central roles in the reproduction and transformation of the social and economic orders (Harvey 1990b). The assessment of the transit drivers as slow, late, and fundamentally inefficient enables city government to discipline workers at the same time as it disregards the needs of transit dependent residents in favor of business class commuters. Attacks on public workers and the withdrawal of public services have gone hand in hand in the neoliberal transformation of governance (Collins 2011). Workers and transit-dependent riders—including youth, elderly, disabled and low income riders—are left out of conceptions of the social good which focus on the productivity of the market economy.

Lastly, this chapter asks us to consider the fracturing in the urban public sphere where the interests of public transit drivers and riders are placed in opposition to one another. Transit workers become objects of public resentment when their wages and union protections are seen as having come at the temporal expense of the rider and as a direct financial cost to the city. This use of time—the construction of compulsory lateness, and its use in the orienting of public blame towards the drivers—represents new form of time discipline which works to delegitimize workers and their wage labor contract. We might call this neoliberal time discipline, defined not so much by tight coordination of work activities, but rather by unrealistic temporal expectations and the enlistment of the public in the surveillance and discipline of workers.

Chapter 3: Work Stress and the Racial and Class Logics of Chronic Disorder

Introduction

This chapter examines the scientific and political rationalities that connect stressful working conditions to chronic disease among San Francisco's public transportation workers. Scientists found this group of largely African American men to have some of the highest rates of hypertension and cardiovascular disease ever measured in an occupational group. Scientists and the drivers' labor union claimed that the heightened risk of disease was caused by the *stress* of urban transportation work. In both popular and scientific stress discourses, stress-related disease is associated with being hardworking and engaging in difficult and strenuous work. As I introduced in the previous chapter, San Francisco's public transit workers are often represented as being overpaid and lazy as part of a racialized devaluation of their work. In this chapter, I explore how scientific attempts to demonstrate the bodily harms of work are situated within and shaped by political and cultural assessments of valuable work in the U.S.

I begin by outlining the role of race in scientific and popular understandings of work stress in the United States. I then provide a history of epidemiological studies conducted with Muni drivers. A group of scientists in the Bay Area initiated a research project in 1978, known as the Muni Stress and Hypertension Study,[16] which became the longest-running (more than 30 years) and largest study of the health effects of work stress ever conducted in the United States. Using a science and technology studies framework, I analyze how epidemiology's categories of human difference—in this case, primarily race and class—are employed in the process of creating an explanation of the

16 Later renamed the Muni Health and Safety Project

work-based cause of the drivers' chronic disorders. This involves separating out and "controlling for" categories of race, class and gender. I explore, especially, the contradictions of making race analytically *not matter* (controlling for race) for the sake of demonstrating work-related harm, while at the same time confronting the deeply racialized nature of transportation work in San Francisco. I also examine how the ambiguities of the drivers' social class—they receive middle class wages for performing symbolically "blue collar" labor—shapes the possibilities for both scientific and political recognition of the harms of transit work. Lastly, I consider how public, political representations of Muni drivers as being overpaid and having a poor work ethic limit the drivers' claims that they are performing stressful work with damaging health effects.

This chapter is based on interviews with scientists, physicians, and union officials, as well as analyses of scientific publications, archival collections from the Labor Archives at San Francisco State University, and relevant newspaper articles.

Stress and Racialized Heart Disease

During the course of the 20th century, heart disease grew from a relatively obscure disease to the number one cause of death in industrialized countries. Scientific and popular discourses often represent the rapid increase of heart disease and other "diseases of civilization" as a consequence of modernity and the associated processes of industrialization and technological change. Many scientists believed that the increased speed of life processes in modernity—connected especially to mechanized production and transportation—created the conditions for modern epidemic of heart disease in the 20th century (Harrington 2008, Viner 1999, Wainwright and Calnan 2002).

Stress concepts—both popular and scientific—emerged alongside this new epidemic of heart disease. The reorganization of work during the industrial revolution, and the continual intensification of work across the 20th century, were thought to create conditions that are unnaturally fast-paced, and "stress became a unifying slogan for the unnatural effects of modern industrial civilization" (Viner 1999).

Throughout much of the 20th century, heart disease was often understood as a disease that primarily afflicts affluent white men. Many cardiologists believed that the increased pace of modern life was embodied most fully by upper-level, white-collar workers (Aronowitz 1998). In this view, white men were the most directly affected by the stresses of modernity and its new work regimes. Heart disease took on a positive valence through its association with working men's high levels of responsibility, ambition and hard work, and, in this way, "marked its sufferers as good modern citizens" (Pollock 2012:35). By the 1950s, heart disease was understood as a "disease of affluence" and cardiologists had even begun calling coronary heart disease the "executive disease" (Harrington 2008:163). Later developments in heart disease research continued to associate the positive attributes of white modern men with a predisposition for heart disease. For instance, the development of Type A personality theory perpetuated the notion of the male business executive with high levels of ambition, responsibility and stress as the primary sufferer of heart disease (*ibid.*). This conception of white heart disease was sustained throughout the 20th century, as white middle-class men continued to serve as research subjects for the majority of studies about stress and heart disease.

During the first half of the 20th century, the positive valence of white heart disease was often drawn out through comparisons with African Americans. African Americans

were thought to have very little risk of disease because, as prominent cardiologist wrote in 1931, as opposed to the "white man, particularly one living a life of stress in urban conditions of competition, work and strain… the negro in the South…is unhurried, unworried, superstitious but not ambitious, full of childlike faith, satisfied, helpless, plodding, plain, patient, yet living a life of joy and interest" (Aronowitz 1998:100).

By the 1960s, there was growing recognition that women and African Americans also suffered from heart disease. Scientific demonstrations of excess hypertension and heart disease in African Americans date back to at least the 1930s, and by the 1960s extensive evidence showed that African Americans had twice the rates of hypertension as whites (Kaufman and Hall 2003). However, the representations of heart disease as a pathology of "overwork," and as the consequence of a valuable contribution to the economy, did not apply to African Americans. When cardiologists were confronted with data demonstrating higher rates of heart disease in African Americans, rather than signifying their participation in the modern business world, as it did for whites, the data were taken as proof that African Americans had an inferior biological makeup (Pollock 2012).[17] That is, recognitions that African Americans may be the primary sufferers of heart disease augmented the positive valuation of the disease. By the 1970s, heart disease came to simultaneously signify white people's hard work and high levels of responsibility as well as the lower status of African American bodies and genetics.

It is important to note that the imaginaries of both white and black heart disease persisted throughout the 20th century. Even as data began to contradict the image of the "overburdened executive" as the primary sufferer of stress-related heart disease,

17 Pollock (2012) cites a passage published in a cardiology journal in 1932: "In view of the facts that heart disease in the negro as compared with the white race is of greater incidence, occurs at a younger age, pursues a more rapid course, and has a higher morality rate, the opinion is offered that the cardiovascular system of the American negro of the South is inferior to that of the white race" (37).

"the idea of a link between stress and the executive or managerial lifestyle had become deeply embedded in American popular culture. It confirmed what everyone thought they knew, namely that life was tough at the top" (Harrington 2008:158). This paradigm excludes African American heart disease from the discourse of deteriorating bodies in progressive modernity, and disassociates African Americans from claims to overwork. The broad framework for charting the racialization of heart disease provides insight into the possibilities for scientific and political recognition of work-related disease available for African American workers in San Francisco.

Epidemiology in Context

We can understand epidemiological studies of stress-related disease among Muni workers to reflect the racialization of work stress and heart disease described in the previous section. Before exploring the Muni stress studies in more detail, I want to first describe how science and technology studies scholars have characterized the social and political role of the scientific field of epidemiology. Epidemiologists study the patterning and causes of disease in human populations. Epidemiology's categories and forms of reasoning predominate public health representation and shape public health policy. Scientists, public health practitioners and the many U.S publics regularly understand and intervene into population health by way of the primary categories of epidemiological description and analysis: race, class, and gender (Epstein 2007, Shim 2014). Sociologist Janet Shim (2014) studied how epidemiological practices represent and intervene into the lives of people living with chronic disease and found that, as she writes,

> Epidemiology as a set of social practices both emerges out of and contributes to systems of social classification by race, class, sex and gender. These classificatory and meaning-making practices are numerous, diffuse, and unremarkable, almost to the point of being invisible. In this way, race, class, and gender become part of our everyday logic of 'common sense'—a way of comprehending, explaining, and acting in the world [4].

Epidemiology, as the key discipline of state public health analysis, plays an active role in the production and circulation of categories of human difference. This observation about the co-constitutive nature of scientific and social classification fits within a larger field of social inquiry often referred to as science and technology studies. Studies in this field have examined the dense interconnections between scientific practices, knowledge claims, and the diverse socio-cultural and political forms in which they are embedded (Latour 1999, Jasanoff 2005, Hess 2007). On the one hand, scientific knowledge practices are productive of the very phenomena they aim to measure, such as when the categories of race used in epidemiology and state census influence how people know themselves and identify collectively (Epstein 2007). On the other hand, socio-political conditions, such as shifting forms of capitalism (Rajan 2006, Cooper 2008), shape how biomedical science represents and defines bodies and health. Ian Hacking (1999) uses the term "looping effect" to describe the co-constitutive relation between scientific categories and the people they are meant to label. Epidemiological concepts of race and gender, for instance, emerge through continual, back and forth assertions by experts and by those being labeled.

In epidemiological analyses, being African American or having lower socioeconomic status (or social class) are both factors that are associated with increased risk of hypertension and heart disease. U.S.-based epidemiological analyses reflect the dominant emphasis on racial difference in the population. Health statistics are frequently reported by race and ethnic group, and rarely reported by social class or occupation (in stark contrast to most European countries, a topic I explore in Chapter 6). The Muni stress scientists were initially concerned that the high rates of disorder among the drivers might simply be the result of their being African American, and not a consequence of their occupation. When the scientists attempted to determine whether or not the work was causing increased rates of these stress-related disorders, they *first* had to take account of the drivers' non-white racial identities. Only after "controlling for" race, and making race "not matter," were the scientists able to make a claim about the specifically work-related cause of the drivers' disease. The union followed suit and claimed that race does not matter for the drivers' stress-related disorder, while other times acknowledging the deeply racialized nature of urban transit work (Davenport 2004).

A sub-argument of this chapter is that the logics of "controlling for" and making "not matter" the categories of race and class, Muni drivers are made analytically comparable to white, middle-class workers. Within the current scientific paradigm, when a group of white, middle-class workers shows excess rates of chronic disease, the question of whether or not the rates are primarily an "effect of race" is not raised.[18] This scientific logic reflects the popular work stress discourse in which white men and their

18 As Michelle Murphy (2006) argues, in the case of white, middle class women office workers, gender is mobilized as an explanation for their stress-related disorders, antecedent to an acknowledgement of a work-related cause.

bodily conditions are associated with modern work itself—both in terms of the productive value of work and its potential harms. That is, both scientific and popular accounts of work stress have represented white, middle class men in managerial positions as performing work that is valuable and that requires high levels of responsibility, and because of this, exacts the toll of stress and disorder. In contrast, African American, working-class men are symbolically *distanced* from conditions of difficult, value producing work, and also distanced from the bodily harms of stress associated with hard work. This analytic separation of *overwork* from African Americans reflects the political devaluation of racialized labor in the United States.

More recently, as I will discuss, epidemiologists have associated stress and African American racial identity in studies of the health effects of racism (Krieger 2010). Such studies have isolated the health effects of race as a mode of demonstrating the existence of racism and injustice. In this chapter, I explore the analytic and political work (and implications) of making race "not matter" in the process of claiming work-related harm.

Discovering Stress and Disease at Muni

San Francisco's public transit workers first become biomedical research subjects in the late 1970's, shortly after Louis Reyes, a labor union representative, noticed that the drivers seemed to be having a large number of heart attacks. Louis had been a driver at Muni for barely a year before being elected as a full time official at the drivers' labor union, the Transport Workers Union of America (TWU). Early during Louis' tenure as an official at TWU, a bus driver pulled into a bus loading zone, opened the doors for passengers to enter and exit the bus, and suddenly slumped over the wheel. Sitting there

in his seat, this African American man in his 50s died from a heart attack. Louis was disturbed by the death. He decided to look at the cause of death of other deceased drivers. The labor union carried life insurance for all union members and the policy required that the named beneficiary submit a death certificate in order for the insurance claim to be processed. Louis gathered together the death certificates from every deceased union member—who died while working or retired—and saw, what seemed to him, a lot of heart attack deaths.

Louis began his career at San Francisco Muni as an ambitious labor advocate. His ambition would later take to the position of President of San Francisco's chapter of the TWU, Local 250A, the union's second most prominent chapter next to New York City's Local 100. Louis was action-oriented and said, in a Filipino accent, "If we want to find out what is wrong with the bus drivers, then let's do something." In 1977, he brought his concern to the Public Utilities Commission, which was Muni's governing body at the time. Acting on behalf of the TWU, Louis negotiated with the Commission to have the drivers' required medical exams centralized at San Francisco General Hospital. In order for Muni drivers to keep their commercial driver's licenses, they had to undergo medical examination every two years. Louis thought that if the union centralized the exams to one medical clinic, they would be able to find out what was going on with the drivers.

As the result of the decision to centralize the exams, the drivers came under the care of Dr. Dolores Johnston who was the director of health for San Francisco employees at the General Hospital. She was impressed by the union's ingenuity. Dr. Johnston told me, "They wanted to centralize the exams because people were dying. It was a profound insight and I don't know where they got that from. I started to call them barefoot epidemiologists. Without having any background or even knowing the term

epidemiology, they had the correct idea that centralizing the exams would allow us to look if there were health issues in this group."

Dr. Johnston began the exams and her clinic saw about 100 Muni drivers per month. She quickly noticed that the Muni workers seemed to be suffering high rates of chronic disorders, especially hypertension, or high blood pressure. Dr. Johnston interacted with many city employees in a wide range of professions, but it was Muni drivers who seemed to have it the worst. Dr. Johnston began compiling the transit workers' medical charts at the end of each week and tallying the number of hypertension cases. The process of counting hypertension diagnoses in her patients' medical charts did not produce any statistical results but it did strengthen Dr. Johnston's sense that there was something unusually bad going on with the Muni drivers' health.

In her role as director of the Occupational Health Clinic, Dr. Johnston considered herself an advocate for her patients, who were mostly unionized, public sector workers. She never wanted to be a "company doc," or a physician aligned with management whose job is to keep productivity high and healthcare costs low. Each time Dr. Johnston encountered a problem with a driver whose health status might prevent renewal of the commercial driver's license, she got in touch with Louis in order to negotiate a "light duty," or non-driving position, where the worker could continue to be paid while stabilizing his or her hypertension. Dr. Johnston said, "There were periods of time where I spoke with Louis everyday."

Dr. Johnston decided to get in touch with Dr. Paul Parsons, an epidemiologist she had met several years earlier during a clinical science training program she attended at Stanford University. Parsons agreed to take a look at the transit workers' medical charts. Along with a graduate student, he went through thousands of medical charts and

conducted a statistical analysis showing that, indeed, the transit workers had an exceptionally high rate of hypertension. Parson's initial analysis of the medical charts showed that San Francisco's transit workers had perhaps the highest rates of hypertension of any occupational group measured in the United States, a finding that would later be repeated through larger studies.

Within a year, Dr. Johnston and Parsons initiated a research program that would eventually become the longest-running and largest study of the health effects of stress in the transit workplace ever conducted in the United States (Ragland et al. 1989, Greiner et al. 2004, Antonio et al. 2009). The researchers began by studying hypertension and went on to examine range of other chronic problems related to the urban transit work including heart disease, obesity, back pain, respiratory problems and alcohol addiction. The research program spanned nearly 30 years and resulted in at least 45 peer-reviewed papers and 8 doctoral dissertations. Throughout the years of research, the Muni drivers' labor union was actively involved in the design and implementation of the study, and would later make use of the research results during negotiations with the city over better conditions and more control over planning practices (See Chapter 7: Conclusion). The research study became entwined with a variety of scientific careers, labor union affairs, and disputes over transportation policy and governance in San Francisco. Recently, one of the scientists summarized the results of the many research studies as follows: "In a nutshell, the evidence indicates that many drivers go from a state of extremely good health to a state of chronically poor health within 5 years on the job due to excessive chronic job strain."[19]

19 *Job Strain* here, references a scientific model developed by Karasek and Theorell (1990), which conceives of stress as being caused by high demands and a low degree of control over how one meets those demands. Scientists throughout the world have used the *job strain* model and it is by far the most widely used model

African American Hypertension

Dr. Johnston first became familiar with blood pressure as a significant risk factor for heart disease in the mid-1970s while working as a young physician in a community health clinic in East Palo Alto, CA. At the time, the city was largely African American and poor, nestled among regions that would later become the wealthy Silicon Valley. During the 1960s and 70s scientists and physicians increasingly recognized that African Americans had nearly twice the rates of hypertension as whites. By the late 1970s, most physicians and health researchers associated "being black" with a high likelihood of having hypertension (Pollock 2012). Dr. Johnston believed that the African American community in East Palo Alto had the highest rate of hypertension in the state of California. Dr. Johnston and her colleagues established a hypertension clinic to deal with the epidemic, and initiated campaigns to increase awareness and treatment for high blood pressure among African Americans. On multiple occasions, Dr. Johnston referenced her experience working in an African American community when discussing the seriousness of the transit worker hypertension problem. She said, "In East Palo Alto, these were the highest rates of hypertension in the state. And these [the transit workers'] rates are higher."

By the 1970s, African American hypertension was an already-stabilized disease category in the United States. Anne Pollock (2012), an historian and STS scholar, argues that African American hypertension emerged as a disease category during the 1950s and '60s when the observation of high African American hypertension rates intersected with new scientific rationalities and race politics. With the development of "risk factor" thinking in biomedicine, hypertension was configured as an indicator and cause of heart

for studying stress at work. In later chapters, I examine the political basis and consequences of this model of stress research. In short, job demands refer to having to "work hard" or "work fast." Control is defined by decision-making authority and the ability to use skills to meet work demands.

disease. As a risk factor, hypertension became a site of health intervention (a modifiable risk factor) around which newly formed African American physician associations and health advocacy groups could organize. African American hypertension, therefore, enables both identification of a problem and mobilization for community intervention. These trends stabilized African American hypertension as a distinctive phenomenon.

The American Heart Association estimates the hypertension rate for African Americans to be 44%, which is the highest prevalence rate for any group in the world (Go et al. 2014). Beginning in the 1980s, African American blood pressures had been linked to a genetic difference in salt uptake. A widely circulated yet controversial theory known as the "Slavery Hypothesis" suggested that African Americans retain more salt because of genetic changes associated with the trauma of the transatlantic slave trade (Kaufman and Hall 2003). By the 1990s, African American hypertension was thought to be associated with unhealthy lifestyle factors—e.g. drinking, smoking, diet, exercise, etc. (Pollock 2012). Explanations based on genetics, lifestyle "risk factors," and, more recently, distressing experiences of a racist society remain important to the present, with these multiple causes of hypertension defined through what Pollock has called "etiological eclecticism." Since the early 2000s, epidemiologists have offered forceful critiques of both genetic and behavioral explanations for racial differences in health, instead demonstrating the potency of race and racism as social determinants of health (Krieger 2010, Williams 2012).

When Professor Paul Parsons, the epidemiologist, conducted the analysis of the transit workers' medical charts in 1978, African Americans made up 70-80% of the system's workforce. The large percentage of African American workers at Muni raised the question of whether the observed health problems could be uniquely attributed to

the work of bus driving (to occupation) or to the effect of the race or other demographic factors. I recently spoke to Dr. Parsons in his office and he said:

> One day she [Dr. Dolores Johnston] called and said that she thought there was too much hypertension in the group and would I come and look. I said, well Dolores, first of all they are African Americans and we know that they have much higher blood pressures than whites, so I'm not surprised because a lot of the employees were African American at that point. Also they are working-class, and blood pressures are higher in that group. So I said, I don't know, but I'll come look. I did and it turns out that there is 90% problems with hypertension over the age of 60. You can twist that any way you like, but that's a very high rate.

It was the high rate itself that indicated to Parsons that the blood pressure measures were not strictly related to the standard demographic factors. These working-class, mostly African American men had higher blood pressures than one would expect to see in a group defined strictly by race, class and gender categories. Parsons went on to explain, "I actually did an analysis of population studies in America of different groups—black, white, by class, by age—and in every case the bus drivers were way above what I'd seen in other populations. So it was for that reason we decided to do a project."

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The scientists first approached the San Francisco Muni management in 1979 with their results showing the workers' exceptionally high rates of hypertension. After seeing the results of the first studies, management responded, according to Dr. Johnston, by saying, "'Well blacks have higher rates. It is because they are black that they have these

blood pressures.' This was the excuse of some of the Muni people. They treated us like we were idiots and we didn't know." Louis Reyes, who was working closely with the president of the Transport Workers' Union during these initial conversations repeated this point during an interview: "Everybody thought that it was because they were black. Black people tend to have more high blood pressure than other races, but when they [Drs. Johnston and Parsons] came in with the results, they disproved all that." For Louis, the scientists' claim that transit work has a specific health effect, which goes beyond the specific effects of race, age, gender, and class "disproved" the race-relatedness of the disorder. For the union to make claims to the work-relatedness of disorder, race-relatedness needed to drop away. Yet, as we will see, for workers in a racialized occupation such as transit work, this is not so easy to accomplish, and claims to difficult and harmful work are often overshadowed by racial explanations.

Categories and Causality: Race, Class, or Stress at Work

In this section, I explore the logics of race and class difference in epidemiology through an analysis of how scientists mobilized these categories in order to locate the *work-related* cause of chronic disease in the Muni workforce. The epistemology of *work-related disease* situates the cause of disease within laboring activities and working conditions. For the scientists to identify the drivers' hypertension and heart disease as work-related, they had to first "control for" the drivers' non-white race and non-middle-class status. That is, in order for workers in racialized occupations to have work stress recognized as a form of harm, they must *first* account for their non-white status—and race must be made to "not matter"—before the impacts of stressful environments become legible. These epidemiological logics 1) position the white middle-class male

body as the norm of health and, in doing so, 2) assume white middle-class male bodies as more vulnerable to harms of work stress than non-white or working-class people. This analysis of epidemiology's categories sets the stage for a broader look at the cultural and scientific rationalities that recognize difficult and strenuous work (or stressful work requiring high levels of responsibility and ambition) as characteristics of the white, middle-class men.

As expected, the first major study of the Muni drivers showed that hypertension rates among the drivers were significantly higher than the comparison groups and African American drivers had significantly higher hypertension rates than white drivers. These results signaled that transit workers, as an occupational group, had more work-related hypertension than those in other occupations. A body of epidemiological studies shows blood pressure rates to differ by race, age, and social class. Following standard epidemiological practice, the Muni Stress scientists separated out the effects of these demographic categories on blood pressure. In his initial analysis, Dr. Paul Parsons compared the Muni workers to these categories and in every case showed large enough differences to make a claim for the distinctiveness of this group. The drivers' demographic characteristics—African American, working-class—suggest an increased likelihood of high blood pressure, as compared to the norm of a middle-class, white population. However, as Dr. Johnston said, "These rates are higher."

Dr. Johnston and Parsons obtained funding and created a team of scientists to conduct further research. The research team included epidemiologists, physiologists, ergonomists, physicians and an anthropologist. In their first major project, the scientists measured blood pressure in 1500 of San Francisco's bus and railway drivers. One of the trickiest parts was setting up the control groups. The researchers needed to find

comparison groups that matched the drivers in terms of the "traditional demographic risk factors"—race, sex, age, and social class—in order to show the specific health effect of working in the transit system. The scientists had difficulty finding data sets drawn from populations that matched the demographics of the Muni drivers. Employed, African American men were not well-represented in the epidemiological datasets. According to a researcher on the project, this was one of the first times that scientists in the United States had studied work-related chronic disease in a "large blue collar population."

Janet Shim (2005), in her study of epidemiological research practices, describes race, sex, and age as the "holy trinity" of variables which must be included in any epidemiological study. The persistent use of this triad of variables extends far beyond epidemiology, as race, sex and age have become the central categories of difference in U.S. medical research and clinical practice. The saliency of these categories for understandings of biological and population difference in the United States is perpetuated through their varied uses as social identity markers and as categories in state bureaucratic offices, procedures, policies, laws and guidelines (see Epstein 2007).

Race, in particular, has long been a forceful and contentious category of population and health. In her study of epidemiologists, Shim (2005) found that, most of the time, epidemiologists include race categories without offering an analysis of how race generates differences in health. She observes that race is "almost ritualistically included" in research studies, and the use of race in health analyses has become "just something everyone has to do" (413). The inclusion of markers of racial difference in epidemiological analysis may have once had explicit justification but has become a taken-for-granted practice within the discipline.

The vast majority of medical research studies in the United States include categories of race and ethnicity, despite widespread disagreement about the meaning and value of race and ethnic categories for understanding risk, health and disease. Critical scholars of science and technology have revealed the varied cultural and political implications of how scientists deploy race categories in research, often finding that race categories are used in ways that emphasize and codify biological understandings of racial difference (Duster 2005, Haraway 1997, Epstein 2007) or represent race as a "culture" or set of individual behaviors, rather than a structure of inequality (Shim 2014).

Scholars have argued that the uncritical use of race categories in medical research has perpetuated a flawed conception of race as biologically defined (Roberts 2011). The mandatory inclusion of race and ethnic categories in medical research leads to a proliferation of what Steven Epstein (2007) calls "difference findings," which show that many health outcomes differ across race. These findings feed into conceptions of race as reflecting essential biological differences between groups. As Epstein (2007) writes, "…health inequalities by race are an enormous social problem deserving sustained attention, but focusing on biological differences is *not* the way to address them"(204).

Furthermore, the lack of critical analysis of race categories permits a tendency towards individualized and "cultural" understandings of racial difference. In this framing, race stands in as a proxy for "differential cultural behaviors and beliefs" (Shim 2005:414). This places responsibility for changes in health status on the individual who holds particular beliefs and engages in cultural behaviors detrimental to health.

The tendency to understand race as biological or cultural difference obscures the relations of privilege and oppression and structural inequalities that characterize race

relations and associated health outcomes (Krieger 2005, Roberts 2011). Shim takes her critique of epidemiology one step further by arguing that the field does not just miss or obscure power structures shaping race relations, but also actively constructs and promulgates inappropriate understandings of race through the field's impact on public health discourse and practices. Shim's research participants—people of color living with cardiovascular disease—describe their experiences of race and health, in part, through the ways that medical institutions define their race categories. In the process of *measuring* race, epidemiology enacts a powerful social inscription and categorization upon the bodies of those living with cardiovascular disease.

In opposition to the biologizing and individualizing trends, other health researchers deploy race categories to expose and challenge structures of racism and injustice. Critical epidemiologists have "turned racist notions of racial categories on their head" and have instead argued that race categories must be used to "document, monitor, and analyze the impact of racial injustice on people's lives, including their health" (Krieger 2010:228).

The Muni Stress scientists presented the significant differences in blood pressure found between the white and African American transit workers as a straightforward fact that mattered little for their claim that transit work has a specific effect on health. In this way, race comes to officially *not matter* for the transit drivers' health advocacy, even while the drivers' experiences of stress at work are often organized through experiences of racial difference. This is apparent, for instance, in anthropologist Bev Davenport's (2004) description of how Muni drivers' managed their stress using racialized modes of emotionally disengaging, which she terms "cool pose."

While significant racial differences in health persisted at Muni, both scientists' and labor advocates told me that the demonstration that both African Americans and whites were affected by transit work meant that "race doesn't matter." After the scientists demonstrated that transit work had a specific effect on health—in addition to race, age, and gender—the president of the transit drivers' union said, "So the whole issue of race did not even come into play anymore when they saw that." Even while labor union officials are aware that stress on the job is a racialized experience for many Muni drivers, the union promulgated the epidemiological claim that race does not matter.

It is only when race no longer matters that the connection between disease and working conditions becomes legible in the epidemiological paradigm. Importantly, the dissociation of race from disease also enables labor union action, and brings the workers' disease into relevance for city government. The claim that race does not matter reflects a cultural and scientific logic of whiteness as the norm of health. Shim writes, "as a category that is socially constructed as unmarked, whiteness comes to serve as an unquestioned and unreflective norm" (2005:410). African American racial identities must be taken into account *before* making assessments about work-relatedness of disease. On the other hand, whiteness does not get in the way of recognitions of work-related disease.

Throughout the years of stress studies at Muni, the African American workers showed persistently worse health profiles than their white, Latino or Asian coworkers. The first publication from the Muni Stress Study reported that African Americans in the "over 60" age group had 100% hypertension rate, while 73% whites in this age group were hypertensive. Even as the Muni Stress Study demarcated the transit worker hypertension problem as distinct from race and social class (as I will discuss below), the

scientists continued to invoke race as a central component of the urban transit worker experience.

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Income and social class status of the Muni drivers were also a constant concern for the researchers. Yet, none of Muni Stress papers directly include social class or income in their analysis of stress-related disorders. Given the scarcity of data on African American men working in other "blue collar" occupations, the Muni Stress researchers had to construct comparison groups from existing datasets.[20] To create the main comparison group, the researchers got access to a large national sample of blood pressures in the United States, and selected a group of individuals that matched the Muni workers in terms of sex, age, race and employment status.[21]

In contrast to the extensive proliferation of race differences in health research, the inclusion of social class, or socioeconomic status, in public health research has been far less frequent. Many Western European countries routinely include measures of social class in health research, but such measures have not taken hold in the United States. Epstein (2007) suggests that the relatively infrequent use of measures of social class can be attributed to "so-called American exceptionalism,"(144) or the decreased political salience of class in the United States, and to the comparative lack of political actors mobilized around class categories. Furthermore, epidemiologists consider social class to be harder to operationalize than race or sex (Epstein 2007, Krieger and Fee 1994). When epidemiologists and public health scientists in the United States do include

20 Other epidemiologists suggested that the research team recruit their own control groups, but funding was too limited.

21 They used only employed individuals, as they are generally healthier than the unemployed.

socioeconomic data in health analyses, they often do so with little theoretical justification and use inconsistent measures (Krieger et al. 1997).

Socioeconomic data are primarily used to "control for," rather than study, the effects of socioeconomic position on health. Many epidemiologists believe that social class is one of the most important determinants of health status, yet the incoherence of measures of socioeconomic status and the lack of available data make it difficult to study. In epidemiological analyses, the effects of social class variables are often so pronounced that, if they were not held constant and "controlled for," they would drown out the effects of all other variables. In an interview, a prominent American epidemiologist told me, "So here's the most important determinants of health held constant in statistical analyses because we don't know what to do about it. You always hold it constant so you can look at other things. If you didn't hold it constant, you wouldn't be able to see almost anything."[22] Socioeconomic status or class, therefore, has a weak position within both health research and medical practice in the United States.

In their first publication, the Muni Stress researchers acknowledged that they were not able to directly control for social class. The authors wrote, "Social class is not directly controlled for; however, if social class is defined by income, MUNI bus drivers generally have higher median incomes than individuals in [all of the] comparison groups" (Ragland et al. 1987:212). Even if income level was affecting blood pressure, the researchers believed that, in this case, income would have a "conservative bias." The drivers' relatively high pay would result in drivers having lower blood pressures than the control group. In this way, the drivers' high pay makes an even stronger case for the

22 He went on to say: "The problem with looking at social class is you never can figure out what it is about social class that's at issue. Is it income? Is it low education? Is it poor medical care? Bad physical environment? Bad housing? All kinds of things. It is so impossible to disentangle all of these things that basically epidemiologists ignore social class. What's the point of studying something that you can't get a handle on? Something that you can't do anything about anyway?"

work-relatedness of the disease, as lower social class gets ruled out as a confounding factor.[23]

Researchers working in San Francisco and other regions often repeated this point that bus driving and other ostensibly low status jobs are actually well paid. Bus driving, according to one epidemiologist, is a "great job [...] These guys are middle-class. Their children go to college." Because the Muni workers make a good wage, they are situated above the middle rungs of America's class hierarchy. This renders the transit workers nominally middle-class, while holding a reputedly working-class job. *When scientists can symbolically position the drivers in the middle-class, they create a stronger argument for the connection between work stress and disease.* This allows scientists to more easily rule out lower class status as a cause of the chronic disease.

Another epidemiologist who studies mass transit workers in New York City told me, "If you want to tease out the effect of race and class, then the fact that these guys are not currently poor is really useful. These are people of color living in America, but they are not poor people. This is not an inner-city population that has bad health for so many other reasons. Epidemiologically, they are important because you might really find out something important about their job [transit worker], or you might find out something about what being a black man is about." In other words, this scientist suggests that the drivers' good salaries stabilize class, rendering other characteristics of the group open to analysis. With class held constant, scientists can then find out something about their race and gender ("what being a black man is about") or occupation ("what their job is about").

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23 The researchers also included a sample of individuals who were hired at Muni but had not yet started to work, or, in the language of the researchers, who were not yet "exposed" to the occupation. Later research would show that number of years of exposure to transit work was tightly linked to blood pressure (Ragland et al. 1997). There were so few new hires that were white that they could only make comparisons for African American men.
Controlling for sex would be easy. Because only a small percentage of transit workers were women, they decided to study only men.

The ambiguous status of driver as both working-class and middle-class also reflects a dichotomy within public health between "prestige-based" definitions of class, such as status of occupation (e.g. lawyer versus factory worker) and "resource-based" definitions such as income or property owned (Krieger et al. 1997). A prestige-based (or symbolic) definition would position the drivers in a lower stratum of the occupational hierarchy in the United States, while a resource-based measure positions the drivers within the middle-class. In the remainder of the chapter, I explore how San Francisco's urban transit workers' racial identities and class status shape the possibilities for the scientific and political recognition of work-related disease in this group.

Transit Worker's Claims to Difficult Middle-Class Work

As I introduced in the previous chapter, there is persistent and contested public discourse in San Francisco representing the transit workers as overpaid and having a poor work ethic. The perceptions that devalue urban transit work disallow recognitions of *work stress*—and claims for healthier working conditions—by representing the workers as not performing a difficult job and already receiving too many benefits. How can a worker have a stress-related disease if his or her job is not difficult or stressful? If the drivers are already overpaid and collect too many benefits, why should they be given even more resources and protections?

San Francisco's African American Middle-Class

In epidemiology, the transit workers' middle-class salary bolsters claims for the work-relatedness of their disorders. Since they are middle-class, their chronic diseases are unlikely to be caused by low socioeconomic status or conditions of deprivation. The

Muni Stress and Hypertension Study researchers often referred to the workers' middle-class wages, while simultaneously describing the group as "blue collar" and "working-class." This ambiguity of the transit workers' social class—simultaneously low occupational status and yet better paid than average—is a catalyst for the public disapproval. Within the American occupational hierarchy, bus driving falls squarely in the category of working class or blue collar occupation, and the disjuncture between the symbolic status of their job and their high pay is a continual topic of public discourse.

Transit workers' themselves often claim middle class status by describing their work as "professional." Many Muni workers prefer the term "professional operator" as an official title for their job. Training to become a driver takes weeks and it is often years before drivers develop the skills to safely handle the large vehicles, navigate the traffic, and deal with riders without getting distressed. It is a common saying at Muni that "it takes five years to become an operator."[24] Union officials told me that the recent push by the city government to allow the hiring of part-time drivers undermines the professionalism of the job. The union contends that, because of its demanding nature and constant risk to public safety, transit work requires a professional employment structure, with guaranteed hours, salary and protections. In the union's view, city officials falsely represent transit work as something that can be performed by anybody, in a flexible employment contract.

As discussed in the previous chapter, the 2010 political campaign for Proposition G: Muni Operator Wages, which was a voter-initiated intervention into drivers' pay, was a reflection of public resentment about the slow moving and late system. It was also a sign

24 Davenport (2004) also reported the salience of "it takes five years to become an operator" in the context of un-recognized professionalization required for transit workers.

of the driver's ambiguous social class status. Muni drivers are, in fact, some of the highest paid urban transit workers in the country. While U.S. publics have expressed outrage over executive compensation during economic recession, there has been an even greater tendency to target lower status occupations with charges of being overpaid, reflected in attacks on public worker contracts throughout the country (Collins 2011) and in local newspaper headlines such as "Outrage grows over Muni operators' pay" (Nevius 2010).

Furthermore, employment at Muni is often defined as the condition of possibility for an African American middle-class in San Francisco. During the 2010 mayoral campaign, I attended a debate where the mayoral candidates debated Muni's budget problems. The candidates openly discussed employment at Muni as supporting, and offering one of the only opportunities for, a "black middle-class" in San Francisco. In their discussion, one candidate represented the high wages as a benefit to the city, providing one of the few sources of stable income for an otherwise impoverished class. The "African American community is in crisis," he said, in reference to the rapid outmigration of African Americans in San Francisco who, he claimed, had fallen to 4% of the population. In this candidate's view, an African American middle class is a valued asset to the multicultural city. These arguments fell short with the public, and mostly backfired, resulting in further resentment towards the drivers, reflected in the following statement: "I also don't like this 'path to middle class' argument. IT IS NOT THE GOVERNMENT'S ROLE TO SET UP A 'PATH TO MIDDLE CLASS' FOR A SEGMENT OF SOCIETY AT THE

EXPENSE OF THE REST OF THE SOCIETY! [...] WHERE'S MY PATH TO MIDDLE CLASS [...] ??"[25]

Previous mayoral elections have also been an occasion for the pay and political position of the Muni drivers to become a part of public discourse. In 1995, the drivers' Transport Workers Union openly accused the incumbent mayoral candidate, as the *SF Weekly* reported, of "playing off racial divisions in order to get re-elected... attacking the city's only predominantly black union, characterizing its members as lazy, greedy, and overly compensated for their poor performance, he [the Mayor] hoped to turn the election into a contest between the races."

Many drivers I spoke to take great pride in their work, in terms of the professionalism they bring to operating the vehicles and serving the public, as well as the respected position it gives them in their social networks. One of the main reasons drivers cited for working at Muni was that it enables them to take care of family members. Through visiting different Muni divisions, I met drivers' spouses, children, nieces and nephews, siblings, parents and friends. I attended two "Operator of the Month" events where a driver receiving an award had as many as ten family members attending the ceremony. At the same time, the drivers are aware of the circulating stereotype of the lazy bus driver, and the public attack on the status of their job. As one driver said, "Oh people say oh you drive the bus. You just sit there all day. How hard is it to sit there and drive the bus? But I tell you, it's not that it's easy. It's not."

The problem of absenteeism and the difficult job of the transit worker

"Instead of calling those drivers lazy nig*#ers they say absenteeism is high."[26]

25 Quote is taken from an online discussion about a Muni-related news article

This final section considers how accusations of laziness and malingering block recognitions of difficult and stressful working environments, focusing in particular on the problem of absenteeism, or not showing up for scheduled shifts. Along with the accusations of overpay are regular assertions that Muni drivers do not work hard. The Muni Stress researchers and the labor union worked against the accusations of poor work ethics by arguing that the job is unusually difficult.

Critics of the drivers often point to the high percentage of Muni drivers who do not show up to their scheduled shifts. The rates of absence are indeed high. On an average weekday, about 345 of the system's 2100 drivers call in sick or take a vacation day, and another 300 are absent due a long-term problem, such as disability (Worth 2011). Taken together, there is a 30% absenteeism rate for the system. In 2010, the *San Francisco Chronicle* reported that *unexplained* absenteeism had reached an all-time high of 15% (Eskenazi and Dewar 2010). The *New York Times* reported that unexplained absenteeism at Muni declined slightly to 12.9% for 2011, but remains high in comparison to a 3% national average across all industries (Elison 2012).

When asked by a reporter about the high rate of unscheduled absences, the current vice president of San Francisco's transit union connects the high absenteeism to the difficulty of the job. He said, "We're dealing with homeless people and sick people and mentally ill people and children and teenagers while we're trying to keep everything on schedule. All this pressure rests squarely on the operator. You've got to be a baby sitter,

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26 Commenter on article about absenteeism at Muni, [Accessed February 3rd, 2014]. http://sf.streetsblog.org/2010/02/25/spur-director-muni-drivers-deserve-good-pay-but-work-rules-must-change/

and you've got to drive this 40-foot vehicle through very congested streets" (Elinson 2012).

The high rate of absenteeism among the drivers, and the poor service of the Muni system as a whole, is constructed in political discourse as problems stemming from the drivers' poor work ethic. Media and city officials blame labor union protections for promoting a poor work ethic and allowing absences and substandard work practices to continue unpunished. Newspapers regularly publish articles on the problem. These articles often include politicians arguing for reduced union power and accusing the union of protecting lazy workers (Gordon 2010a).[27]

Absenteeism in public transit work is high across the country. Union officials argue that the nationwide rates reflect a problem with how the work is organized and argue that drivers were missing their shifts because the working conditions are making them sick. I spoke with an International Representative of a major transit union that takes part in contract negotiations for public transit systems throughout the country who told me, "Every single time I sit at the table, they [the management] bring up the high absenteeism. They say it's a problem of the operators not working or taking advantage, not having enough discipline [...] We know that there are high rates across the industry. Why are there not studies showing that absenteeism is high from the stress and from actually sickness? I don't know, but there should be."

The Muni Stress scientists spent many hours speaking with drivers and riding on the lines, and they became convinced that the job was in fact difficult and stressful. When new researchers joined the project, Dr. Johnston would make them ride on the transit

27 Davenport (2004) found that in a review of nearly 300 newspaper articles about Muni collected between 2000-2002 they were "mostly reports of the system's failures, usually with the operator being portrayed as the central villain figure in the narrative" (95).

lines and speak with drivers to "see for themselves" what the job was like. Initially, the researchers did not plan to study stress and the idea to focus on stress in particular came from the drivers. One of the first researchers on the Muni Stress Study told me, "It was the workers themselves that kept telling us that it was stress, stress, stress that is causing all these problems." He went on to say, "but stress is a really difficult thing to study. At the time, there was no clear paradigm for how we should define let alone study stress." According to one union official closely involved in the stress study, "They [the drivers] will tell you the job is stressful. Stress is the buzzword. Every Muni operator will tell you that the job is stressful. They don't really know what that means. To them it means they are so tired they can't do anything else after work. Sometimes when it is bad they can't come to work the next day."

In their first publication, an article in the *International Journal of Epidemiology*, the researchers did not include measures or analyses of stress, but they did speculate that characteristics of the job were causing the health conditions: "The occupation of driving a bus in a modern urban transit system [...] is characterized by a high level of pressure to perform a complex task under a rigid time schedule, in conjunction with a high level of responsibility for passengers and equipment, and a low level of control or discretion over how this task is conducted" (Ragland et al., 1987). Without actually mentioning stress, they explain the high blood pressures in terms of the difficulties the drivers face.

In a later study, the stress researchers rode 27 different transit lines, three times each, and made a quantitative measure of the "stressors" that the workers faced driving on a particular line, including barriers (traffic conditions, troublesome passengers, mechanical problems) and time pressure (rigidity of schedule, amount of "detachment"

time). The results showed that, for the 308 drivers included in the study, those who worked on lines with more barriers and time pressure had more unscheduled absences (Greiner et al. 1998).[28] The scientists used "objective measures," where the scientists themselves observed the stressors.[29] Using the "objective stress" paradigm in which independent observers ride on the transit lines and record the occurrence of stressors, the stress researchers found that work intensity and job stressors were significantly associated with hypertension (Greiner et al. 2004). Within the scientific literature, these studies demonstrate authoritatively that driving in the Muni transit system is associated with extremely high hypertension rates and that the high rate of disorder is likely caused by stress. Yet these claims are made by factoring out the racialized experience of being a driver.

Even in the face of persistent negative public opinion of the drivers' work ethics, some city officials and managers now acknowledge that driving at Muni is a difficult job. One manager told me, "What is wrong with a system where on any given day you have 30 percent absenteeism? I mean it's just ridiculous. Is the job so bad, that people don't want to come to work?" In several other interviews with managers, they often mentioned that driving is in fact a stressful job, even while offering almost unanimous critique of the labor union work rules and protections.

Conclusion

This chapter aimed to elucidate the scientific logics of connecting bodies and work in the context of racialized and classed dynamics of urban transit labor. The

28 The study did not report results by race or ethnicity.

29 The scientists' first attempts to measure stress showed an inverse correlation between self-reported stress and hypertension, or those who reported more stress actually had lower blood pressures (Winkleby et al. 1988). They decided that the counter-intuitive results were a artifact of using subjective measures of stress. Perhaps those who were more willing to acknowledge stress were also better at processing its effects.

epidemiological logic of "controlling for" race to show the specific effects of work enabled scientists to claim that race *does not matter*, and that the drivers' disorders are work-related rather than race-related. Work-related stress in a population becomes scientifically legible when race is factored out of the causal nexus of bodies and working conditions. Furthermore, the drivers' middle-class pay—in contrast to the blue collar status of their work—is taken as stronger proof that their chronic disorder has a work-related cause. Together, these two analytic moves situate the white, middle-class as symbolically *closer* to (difficult) working conditions in the epidemiological logic. The claim that race does not matter for the transit workers' health creates the conditions for recognizing their work as stressful and difficult. Yet the reality of the deeply racialized nature of urban transit work in San Francisco continues to arise in public disputes about the difficulty of transit work, the appropriate level of pay, and the work ethic of these public workers.

Chapter 4: Universalizing Transit Worker Stress: Science, Solidarity and Global Categories

Introduction

This chapter examines the intersection of labor organizations and scientists in the construction, stabilization, and globalization of the transit worker stress problem. I chart a convergence of scientific research and transnational labor organizing through which the category of the "urban transit worker" is universalized against the backdrop of highly variable global economic conditions, forms of citizenship, and national contexts. Both scientific research and transnational labor organizing designate a category of the global transit worker with universal skills, experiences, concerns, conflicts and risks. I find that transnational scientific networks and labor organizations, together, co-construct the phenomenon of the *transit workers stress*.

Scientists and transportation workers in San Francisco and worldwide claim that urban transportation work is one of the world's *most stressful* occupations, with professional drivers suffering higher rates of chronic disorder than workers in most other job categories. While many types of drivers—truck, tram, rail, delivery—have excess rates of disease, urban bus drivers in particular are thought to be most effected by stress and to have the highest rates of disease. Health scientists claim that "During the past five decades occupational researchers have documented that bus drivers' health is worse than in almost any other profession" (Poulsen et al. 2007:75).

The universalization of the transit worker stress problem required the organizing efforts of a global network of labor unions. In San Francisco, the Muni Stress and Hypertension scientists worked closely with the Transport Workers Union in order to plan and carryout the research. The labor union's transnational contacts also set the

groundwork for scientists to understand transit worker stress as a global phenomenon. However, the connection between scientists and labor unions, in the United States especially, has at times created the perception that the research is politically interested and partial towards workers. As a result of the scientists' embeddedness within antagonistic labor-management political relations, physicians, other scientists and the transit system management came to see the science itself as biased. In response, the Muni scientists attempted to represent their science and findings as universal, in part by arguing that their object, the stressed urban bus driver, can be found everywhere in the world.

The discourse of transnational labor organizing produces its own universal figures. In the labor union discourse, the transportation worker who moves goods or people for a job experiences distinctive working environments and is situated within political-economic positions that are equivalent across time, space, and national context. Notions of international solidarity articulate the shared position, interests, and risks of transit workers worldwide. I find that the industry's major international labor federation has often used health and safety issues to mobilize solidarity amongst the world's transit unions. In the second half of the chapter, I review how transnational labor organizations have addressed fatigue and HIV risk in particular and suggest that work-related health issues may be an important site for emerging forms of cross-boarder solidarity.

Transit workers not only share specific health risks but also hold shared forms of political power. Transit workers are enmeshed within key sites of economic distribution systems—roads, railways, ports, and airports—and as such their particular forms of political economic power derive from their ability to disrupt movement and distribution in the economy. More broadly, the image of the global transit worker is constructed and

sustained within labor organizing discourse through notions of "the worker" as an essential and universal category of political actor.

In describing the stabilization and globalization of the transit worker and the transit worker stress problem, my analysis is located at the sites of the production of universalist discourse. In this chapter, then, I follow my informants' optimistic reading of the transnational labor movement as a force acting against global capital. Social theorists have documented the extensive fragmentation of labor and increasingly critiqued the universal categories of labor and capital developed within Marxists analysis (Tsing 2009). While the fragmentation of labor under neoliberal capital has been the subject of much research in anthropology, the production and use of categories of universal solidarity are relatively unexplored. Similarly, much writing in medical anthropology puts forward critiques of the universal constructions of body and health often found within the Western biomedicine (Lock and Farquhar 2007). This chapter, instead, examines the overlapping contexts of biomedical generalizations about work stress and the labor movement's universal categories of work and solidarity. Labor organizers understand the transnational alliances enabled by global categories of the worker to serve as an effective counter-force to global capital.

The politics of universalist and particularistic discourses in the field of transnational capital are sometimes contradictory. Forms of social differentiation—along axes of ethnicity, gender, or citizenship—have been used both as a means of furthering capital's domination of labor, and in strategies of worker resistance. In the face of capital's tendency to treat labor as an undifferentiated mass, workers have sometimes asserted forms of social difference as a means of making claims upon the state or capital for recognition of rights and protections. Conversely, capital and state strategies of

imposing oppositional categories of ethnicity and citizenship "from above" work to divide potentially associated groups of workers (Silver 2003). There is also a long history of exclusionary practices within the labor movement which are meant to limit access to wages and protections—to exclude some people from established social contracts—along axes of race, gender and citizenship. As a consequence of these dynamics, "…partriachalism, racism and national-chauvinism have been integral to the making of the world labor movement … and live on in one form or another in most proletarian ideologies and organizations" (Giovoanni Arrighi quoted in Silver 2003:22-23). I want to keep these criticisms in mind as I work to show the powerful production of the universal by scientists and labor organizations, yet keep intact an optimistic reading of the labor movement.

This chapter is based on interviews with scientists, physicians, and labor organizers; participant observation in labor union meetings and conferences; a review of scientific literature; and a review of labor union documents and publications.

The world's most stressful occupation

Despite the huge variety of transit workers' social, political, and economic conditions, scientists and transit labor unions argue that the "stressed transit worker" can be found throughout the world. Since the beginning of the Muni Stress and Hypertension Study in the early 1980s, research showing transit workers' excess risk of chronic, stress-related disorder have been repeated in many countries, and often shows this category of worker to have higher rates of disease and early death than most other occupations. Studies demonstrating the links between urban transit work and excess disease have been conducted in Oslo, Stockholm, Helsinki, Los Angeles, Chicago, New

York, Montreal, Rome, Amsterdam, London, Munich, Berlin, Belgrade, Hong Kong, Taipei, New Delhi and Pune, India and other cities in Austria, Italy, and Russia and the Soviet Union (Winkleby et al. 1988, Kompier 1996, Evans and Johansson 1998, Tse et al. 2006). Urban transit work has been most strongly associated with hypertension and heart disease, with workers in this profession having much higher rates and dying earlier from these disorders than people doing other forms of work. People who drive for a living also get heart disease much younger than others, and are "strikingly over-represented among … young patients with MI [myocardial infarction]" (Belkic and Savic 2013:38). Transit work is also linked to increased risk of depression, musculoskeletal disorders, gastrointestinal disorders, and diabetes, as well as alcohol dependence, drug use, tobacco use, and obesity (Tse et al. 2006, Belkic and Savic 2013). After nearly a half-century health research about transit work, occupational stress scientists argue that urban transit workers have higher rates of stress-related disorders than almost any other group of workers.

In modern work stress research, urban transit workers rank along with air traffic controllers and mass production workers as the most studied occupations. Scientists argue that "A primary reason urban bus driving has drawn the attention of such a wide array of scholars is that the operation of buses in urban areas is a highly stressful, unhealthy activity […] Epidemiological data from samples in several different countries consistently find urban bus drivers among the most unhealthy of occupational groups, particularly with respect to cardiovascular, gastrointestinal, and musculoskeletal disorders" (Evans and Johansson 1998:100).[30] A systematic review of the literature on work stress and heart disease find that "Such a consistent and large body of evidence

30 There have not been more recent comparable reviews. In recent years, healthcare workers have become significant subjects of stress research.

concerning hypertension and ischemic heart disease was not found for any other occupational group [besides transit workers]" (Belkic and Savic 2013:37).

The data are so persuasive not only as a result of the large number of studies, but also because of the convergence of a wide range of scientific methods and approaches brought to the study of the health risks of transit worker stress. The transit worker stress problem has been demonstrated in the fields of epidemiology, sociology, occupational medicine, social psychology, environmental and health psychology, and physiology (Evans and Johansson 1998, Belkic and Savic 2013). While scientists examining urban transit work have focused on a variety of workplace factors including exposure to exhaust and ergonomic factors, research has focused consistently on stress of the work environment, caused by factors "such as a tight time-schedule, constant alertness and being exposed to threats or even assaults" (Poulsen et al. 2007:76).

In Denmark, a landmark study showed that urban transit workers were admitted to hospitals for heart disease at far higher rates than other job categories (Poulson et al. 2005). In the Danish context, this finding was described as a "political eye-opener" (*ibid.*:6), which prompted legislative action from Parliament to improve working conditions in urban transportation. The government approved funding for a large, multi-year research and intervention project. Danish scientists were able to examine disease rate by type of work using a state-run, centralized database about all hospital admissions in the country. This state-run database, importantly, includes information on occupation, position title and industry for each person admitted to the hospital. No such system of tracking work information exists in the United States. As a result, in the U.S., there are far fewer studies examining disease rate by occupation (I examine this topic in more detail in the Chapter 6).

A recent example of a demonstration of the transit workers health problem in the U.S. is the 2013 Gallup-Healthways study. This study was meant to "track well-being in the U.S." in a random sample of 172,000 U.S. workers. The study found that of all the industries studied, "transportation workers have the lowest well-being scores" (Gallup 2013). In this study, U.S. transportation workers were found to have the highest rate of obesity of any occupation. The authors of the study also reported that transportation workers also have one of the highest smoking rates and that, "This combination [of smoking and obesity] puts transportation workers at the highest risk for developing chronic conditions such as diabetes and heart disease and makes them more susceptible to cancer than workers in other occupations."

Stress scientists also came to understand transit workers as a "good model" for investigating the mechanisms linking stress and heart disease. One of the most prominent psychologists in Sweden told me, "The bus driver is my favorite model of the study of stress." Before turning to bus drivers she had conducted many studies of Swedish workers in a variety of settings including paper mills, factories, and office workers. The robustness of the scientific findings for the group as well as the relatively straightforward causes of their stress make transit workers an excellent model. She said, "It is easy to see that their job is stressful. The fact is that bus drivers in a number of large cities in the world showed very high morbidity and mortality. It's just a very good example that everybody can understand. You can easily see a couple of conflicts that are highly stress related. One conflict is between keeping the timetable and giving good service, and the other conflict is between keeping the timetable and driving safely. This is something we can all understand." A U.S.-based scientist explained that the bus driver is a good model for stress science because the job does not change over time. He said,

"These days it's rare and very interesting to find a job which stays the same. It doesn't change much despite the global economics, or the computer or IT influence, or the postindustrial work. It's still the same. It's like barbers, they do the same things." The static character of bus driving allows scientific knowledge to accumulate as its object remains the same. At the same time, the failure of transit unions to adapt the occupation structure to flexibilized, neoliberal labor conditions underlies the political attacks on drivers discussed in previous chapters.

While the transit worker stress literature did not take off until the 1980s, bus drivers were at the center of the development of early cardiovascular epidemiology. Shortly after World War Two, an epidemiologist named Jerry Morris observed a drastic increase in the number of heart attack deaths in the United Kingdom. In the decade following the Second World War, cardiovascular disease became the leading cause of death in industrialized countries. Morris observed that bus drivers in London were particularly susceptible to heart attack and, between 1949 and 1950, initiated a research study that included 31,000 participants in the London Transport system. His 1953 publication, "Coronary heart disease and physical activity of work," showed that bus drivers were dying from heart attacks at nearly twice the rate of other employees of the transit system. He posited that the drivers' low level of physical activity caused the heart disease. According to a physician who worked on the Muni project, "Every medical student has to read Morris' paper." Muni researchers often told me that they knew, anecdotally, that even though Morris studied exercise, he thought that the problem was stress. As one scientist told me, Morris "wanted to study stress. He just didn't know how to talk about it. They didn't have the words for that yet."

Labor-science collaboration

The accumulation of evidence about the stressed transit worker demanded continual political negations on the part of labor unions. The history of work stress research is shaped by delicate negotiations between employers, employees and the state. In this section I describe some of the political dynamics of the initial collaborations between stress scientists in the Bay Area and Muni's Transport Workers' Union, Local 250-A. In the process of researching, stabilizing and universalizing the phenomenon of transit worker stress, the Muni Stress researchers became increasingly intertwined with the drivers' labor union. The scientists' collaborations with the labor union enabled the research to take place. However, in the view of some of scientists and observers, the collaboration politicized the science and undermined the perception that the results are objective or neutral.

The workplace is a contested space where workers, employers and the state make competing claims about who controls (and owns) the workplace, and also who has the right to allow access to researchers. Relations between workers and employers in the workplace, and the relations of subordination and domination authorized by the wage relation, reflect broader conditions of power (Weeks 2011). Labor organizers (as well as social theorists and health scientists) understand the ability to control the activities in the workplace—including the activities of work and the entrance of researchers—to reflect the status of worker power.

Much workplace health research takes place through an agreement between workers and employers. As a U.S.-based researcher told me, "Without employer and employee buy-in, it's impossible to conduct workplace research." In the U.S., employers and (especially unionized) employees are often at odds, making researcher access difficult.

In Sweden, work stress research flourished in the context of a tradition of compromise between unions and owners. A German researcher who worked in both the United States and Sweden told me that he believed both employers and labor unions in the U.S. are "much more aggressive" leaving little room for the compromises essential to workplace research.

Hidden behind the Muni Stress Study's journal publications was the organizational and the political work the labor union undertook for the research project to commence and, importantly, for the day-to-day procedures of the research to take place. As I discussed in the previous chapter, a union-negotiated centralization of the drivers' medical exams enabled the initial stage of data collection. Furthermore, as Louis Reyes, the Transport Workers Union president, said, "We had to sell everything." The scientists and union representatives had to convince management that the research could save the agency money. They also had to gain the trust of the rank and file workers who would be the study's participants. It took several months for the union leadership and the scientists to gain the trust of the workers. According to a union representative, "Bus drivers don't trust anybody outside their group." Several of the scientists involved in the early stages of research recalled that there was an atmosphere of distrust between the workers and the scientists. One researcher began riding some of the transit lines to get a better idea of the working conditions. She told me, "I had one person completely flip out because he was sure I was with management. I had this man sweating buckets because he thought I was spying on him. It took weeks before he was convinced I was not an agent for management." Another researcher brought up the threat of agents when discussing the mistrust between union and management. He said, "Everybody was looking for agents, one way or the other. Everything is a mess over there. It's headlines

all the time about how badly Muni is run. You'd think they'd be motivated to fix things. Instead they are just in a war with the union."

The drivers' early mistrust was prompted by the fear that workers found to have poor health would lose there jobs. U.S. law requires that people with commercial drivers' licenses (which include public transit workers) pass a basic medical examination every two years. Unmedicated hypertension is one of the disqualifying conditions. Many workers already knew that they had dangerously high blood pressures, and many did not take their medications because of unwanted side effects. To ease the mistrust, the union leadership negotiated with management to create "light duty" jobs, which were paid positions that did not require driving, for those deemed unfit for work.

At the beginning of the 1980s, the Muni Stress Study had broad support. A physiologist on the project said, "Politically, we had union and management support for it. We also had city support for it." During the course of research, however, long-standing political fractures in the city resurfaced and the researchers were positioned on the side of the workers. In the process of gaining worker support, many in management no longer trusted the researchers. In one epidemiologist's view, building a strong connection with the union severely limited the impact of the research findings. He said, "When we then approached management about changing things, to try to reorganize things to make life better, we were persona non-grata. Obviously we were not scientists, we were working for the union. […] We were so tainted by that union connection that they never listened." Another researcher said, "I used to just think if you are finding risk factors for disease everybody will be interested, and everybody will do what's right. But things aren't that way. And, you know, it's very embarrassing to be this naïve." Cultivating a close collaboration with the union helped them carryout the research but,

in doing so, as another scientist said, "you put a knife in your back when you are trying to get policy change [...] because those in charge of policy are going to see you as just another one of those union hacks."

Several physicians who work in a workers' compensation clinic for city employees told me that the science in the Muni Stress Study was biased towards the drivers. They understood Dr. Johnston to be highly devoted to the labor union and, as such, producing biased research. I spoke with the former head of occupational medicine at the San Francisco General Hospital who said, "You have to understand, this is a study which is very sympathetic to the drivers. It is not necessarily seen as scientifically rigorous by some of us." Another physician said, "You know, this was not another Whitehall study," in reference to the iconic study of heart disease in civil servants in the United Kingdom.

Western science constructs the objective, knowing subject in a transcendent "view from nowhere" or "aperspectival" position (Daston 1992). By contrast, social theorists have argued that scientific knowledge is always embedded within particular social, political and material conditions (Latour 1999, Mol 2002), and only ever offers partial perspectives (Haraway 1997). Scientific objectivity and authority continue to be constructed through an erasure of such positionally (Shapin and Shaffer 1985, Daston 1992), but the erasure itself is a political move, one that can only be accomplished by those in a position of power (Haraway 1997). The epidemiologist I interviewed recognized this reasoning when he said, because of his affiliation with the union, others believed that, "obviously we were not scientists." His perspective was skewed, as he no longer embodied a view from nowhere.

Conversely, for Dr. Johnston, the divisive union politics were a necessary part of conducting health research in this setting. Dr. Johnston strongly disagrees with the

scientists who condemned the union connection. She said, “Yeah I’m close to the union. This is because I think they’re going to do something.” Dr. Johnston had long discarded the idea that scientific research itself will result in changes in policy or workplace organization. Instead, she believes that research must be connected to political actors (like the labor union) in order for any change to take place.

From the management’s perspective, the dissolution of trust was the fault of the union. Several managers I spoke to said that the implementation of the research project created an atmosphere of collaboration between management and the union, where management was actively responsive to union communication and requests. Yet, as one manager recounted, “What happened is the union got really nervous because their power was diminishing. Their power base right now assumes an abusive management structure that they protect the worker from. But if management is responsive, then what’s the union’s position? That’s when the union started sabotaging.” He believed the amicable relations between union and management undermined the position of the union as a protective organization and that the union acted to regain that position.

The labor union also played a critical role in securing funding for the Muni Stress Study. The international office of the TWU, based in Washington, D.C., had close ties with the U.S. Department of Transportation (DOT). High-level officials at the DOT were, as Louis said, “good friends of the TWU.” To the surprise of the researchers, after requesting money from the DOT, they offered a one million dollar grant that could be renewed annually. This was far more money than the researchers were expecting. Paul Parsons, who was already a well-known epidemiologist told me, “Normally we get our funding through the NIH or the CDC, and this was the first time I’d ever dealt with a

non-health funding agency. And it turned out that they were really aligned with union interests." Each year the DOT was late providing the promised funding payments, but within a month or two the payments would go through. Paul told me, "Year after year, the money was always delayed but it always came. Why was it delayed? It turned out there was always a political battle going on. We never learned who it was, but the DOT was always fighting with somebody who didn't want the funding to go through. And from what I understand, it had to do with the DOT's alignment with the unions and their political battles for funding a project like this."

After a few years the funding was abruptly cut off with no explanation from the DOT. I interviewed one of the original researchers on the project, who told me "the funding got snipped midstream because of Reagan." I asked, "Because of Reagan?", trying to probe further. Her only response was, "As I recall, it was because of Reagan," and then she shifted the conversation away from funding and began to tell me about how she set up the blood pressure recordings. Louis also unsure of why the funding was cut and said simply, "Somebody told him [the head of the DOT] not to fund us anymore."

Shortly after the DOT withdrew funding, the union used their collective bargaining power to negotiate with the San Francisco city officials who agreed to use city funds to continue the Muni Stress Study. In 1988, the workers memorandum of understanding with the city included a section in which the city promised to fund the stress study. The city funding continued for several years until the researchers secured funding from the National Institutes of Health and other sources.

Globalizing transit worker stress

When the Muni Stress researchers began their project, there were only a handful of published articles on transit worker health. One of the scientists on the project said, "We had no idea we were doing something the world was going to look at." Today, the researchers refer to the "world literature" on transit workers, but often lament the shortage of studies conducted in the U.S. Most of the studies were produced within in European countries.

An early moment in the creation of the "world literature" was at the beginning of the Muni Stress Study, when Dr. Dolores Johnston flew to London to meet with high-level officials at the International Transport Workers' Federation (ITF). At Dr. Johnston's behest, an ITF official sent out a request to the international unions for any information about cardiovascular disease in the urban transit industry. He received back a dozen or so unpublished research reports commissioned by various labor organizations and governmental bodies. Dr. Johnston refers to these unpublished reports at "the gray papers," many of which were written in Swedish, Norwegian, Russian, Italian, German and other languages. Dr. Johnston and the Muni research team expended most of a grant from the U.S. Department of Transportation in the process of translating these papers into English. By collecting and translating the "grey papers," the international labor unions, as one ITF official told me, "began to establish that we had an international issue."

Over the course of twenty years, the Muni Stress scientists developed international contacts and visited transit workers throughout the United States, Europe and, later, South American and Asia. Throughout the 1980s and 90s, European scientists visited San Francisco to learn about the Muni Stress Study. An international network of stress

scientists also facilitated translational labor union contacts. Union members from San Francisco's TWU-250A began traveling to Sweden to take part in meetings with scientists and workers. In an interview, the president of Local 250-A told me that he became well-educated in Swedish trade union practices. Also, he said, "We all became students of Gardell," in reference the Swedish scientist Bertil Gardell who was one of the founding figures of work stress research. Through these contacts there was much worker education about organizing tactics, a topic I will return to in the Chapter 7: Conclusion.

An international network of scientists and labor unions began to stabilize transit worker stress as a global phenomenon through research, organizing and information sharing. They found that, throughout the world, urban transit workers not only had high rates of chronic disorders but also complained more or less about the same stressors: the schedules, the passengers, violence, lack of bathrooms and long hours. As one researcher based in New York City told me, "The bus driver we know maps onto the world, all over the world. All bus drivers have these same problems." Publications in the field often reflect the universalization of the stress problem with statements such as, "Few other contemporary professions are as stressful as urban public bus operation. *Bus drivers in urban areas all over the world* are exposed to a uniquely severe combination of occupational stressors" (Rydstedt et al. 1998: my emphasis).

Political economy of the global worker

Calls for global labor organizing have surged since the late 1990s in response to new globalizations of capital, free trade agreements and the resulting dislocations of workers (Mazur 2000). Social theorists and labor organizers alike argue that in the contemporary era, capital has become hyper-mobile, continually moving beyond the

geographic bounds of the old social compacts within the industrialized West, and always finding new productive sites of investment throughout in the world. An effect of the hyper-mobility of capital is the creation of a single labor market where an ever increasing number unorganized workers compete for jobs on a global scale, putting entrenched unionized workers into competition with workers in settings with low wages and few labor or environmental regulations. It is widely believed that the globalization of capital has initiated a "race to the bottom" for the lowest wages, worst working conditions, and the least social welfare provisions (Mazur 2000, Silver 2003).

The globalization of capital is generally thought to correspond to a weakening of labor. Global firms have moved production to sites where workers are unorganized or the state provides few protections. As a result, workers in de-industrializing settings are rapidly losing their bargaining power. Companies that have not moved production abroad use the threat of moving during industrial disputes with domestic workers. Furthermore, global capital is seen as undermining non-wage forms of income throughout the world and forcing greater numbers of people into waged worked. By creating a glut of global labor, globalization undermines worker bargaining power everywhere. Within this discourse—which traverses social theory, labor organizing, and popular media—labor has suffered an historic defeat.

Labor's decline is reinforced by the new era of "supply chain capitalism" (Tsing 2009), in which firms increasingly employ networks of subcontracted and outsourced labor. Supply chain capital's reliance on vertical disintegration and subcontracting limits worker power by dispersing employers across the global, segmenting workplaces, and disrupting possible associations amongst workers at the points of production. Workers are then often placed into competition across social and national boundaries. By

contrast, Fordist production is often thought to increase worker bargaining power because workers are positioned together in a single workplace, at the point of production, which increases the vulnerability of capital to direct action.

Appeals for global labor organizing suggest that unions must become global as a counterbalance to the global reach of capital. Cross-boarder labor organizing has been commonplace since the industrial revolution, and transnational labor federations have existed for over a century. However, transnational labor federations have increasingly re-branded themselves as "global unions" responding to the threat of global capital (Garver et al. 2007). The anti-World Trade Organization protests in Seattle in 1999 were a key moment in the emergence of a new "labor internationalism" (Mazur 2000, Silver 2003). In the discourse of global unionism, the entire world is increasingly remade and divided into a transnational capitalist class and a global proletariate. In this perspective, "A single homogeneous world working class with similar (and unpalatable) conditions or work and life is in the process of formation" (Silver 2003:8-9).

Social theorists have critiqued this abstracted image of class relations, and the use of a universal category of labor, for eliding the race, gender and national specificities of various groups of workers. The universal subject of class formation (the worker), is implicitly white and male, and is represented above or outside of markers of identity and social difference. Anna Tsing (2009) argues that Marx and Engel's theoretical construction of universal labor as a revolutionary political subject depended on the particular race, gender and national privileges of the English working classes who served as the central figure in the Marxist imaginary. These workers' ability to make demands upon capital was contingent on their position as beneficiaries of the nation's radicalized, colonial rule. Feminist critics suggest that theorists of capitalism must focus on "the

diversity through which women and men of varied class niches and racial, ethnic, national, sexual, and religious positions negotiate power and inequality" (Tsing 2009:152).

Tsing suggests that scholars must find new ways of attending to both the particularities and the globalities of capitalism within a single frame. Capitalism is global—it is "big"—and at the same time highly heterogeneous and makes use of differentiations along axes of ethnicity, gender, age, citizenship status. As opposed to the claim that global capital treats workers as an undifferentiated mass of interchangeable commodities (Silver 2003), Tsing argues that capitalism exploits difference, and that "diversity forms a part of the structure of capitalism rather than an inessential appendage" (2009:150). Global capital creates segregated niches in the economy, and workers respond to capital's demands by learning "to express markers of their difference to show their agility and efficiency as contractors. Such performances entrench the niche structure of the economy" (*Ibid.*:2009:151). Ilana Gershon (2011) similarly argues that individual's living under global, neoliberal capitalism re-purpose their cultures or identities in ways that allow them to commodify and market themselves as having a set of unique skills or assets derived from their cultural particularity. In other words, performances of identity and difference articulate people within economic niches and enable their exploitation.

For both Tsing and Gershon, then, diversity and particularity become the basis for new forms of capitalist exploitation. Tsing labels exploitation that depends gender, race, age, sexuality, nationality and other forms of difference as "super-exploitation." Super-exploitation occurs when workers, because of their social difference, are unable to negotiate for wages in the way imagined by Marxists—i.e. as abstracted labor without

the obstacles of these "cultural" factors. While each author emphasizes how forms of cultural difference and particular identities further capitalist exploitation, neither suggests moving back to using notions the abstract worker or universal solidarity. The political consequences of such critiques of particularity within capitalism are not clear. It is clear, however, that general or universal categories appear to no longer have critical, political import. As Tsing writes, "It's no use going back to that abstract worker; hardly anyone will be moved" (*ibid.*:157-158).

It is with these perspectives in mind that I want to approach the construction of the "global transit worker" in labor union and scientific discourse. Global labor unions continue to represent workers as universal political subjects, with some basic conditions shared among all waged workers. Union organizers point out that, within the labor movement, social difference along lines of race, gender, sexuality or citizenship have often been used to exclude some categories of people from the social compacts between workers, states, and capital won through labor struggle. In the view of the labor organizers I spoke to for this study, which corresponds to the traditional viewpoint of the political Left, these kinds of exclusionary practices can be overcome through universal solidarity.

By way of the figure of the abstract-universal worker, the transnational labor organizers and scientists I studied offer an alternative to the narrative of a defeated labor movement. Some scholars and labor organizers argue that the story of a decline and of a unidirectional "race to the bottom" in wages and working conditions is not so straightforward or inevitable (Silver 2003, Mazur 2000). Against the neoliberal, fatalistic view famously stated by Margaret Thatcher that "there is no alternative" (Harvey 2005), these observers have looked at the emergence of transnational labor

organizing as an important new site of resistance to global capital's regime (Silver 2003, Brookes 2013). While organized labor has been weakened in the sites where capital has departed (the deindustrialized locations), there may be a corresponding emergence of powerful working classes in the new sites of investment and industrialization. Furthermore, labor organizers I interviewed understand supply chain capitalism as creating new linkages and interdependencies that leave capital vulnerable to disruptions by workers and which can be exploited by organized labor. Jay Mazur (2000), the Chair of the AFL-CIO International Affairs Committee, writing on the topic of "Labor's new internationalism", states, "A social movement of potentially tremendous force has begun to gather that can affect the bottom line and the laws of the land" (91).

In the labor union discourse, transportation workers are especially well-positioned to create global unions and gain leverage within global firms. The distinctive nature of transportation work—the movement of goods and people—is the basis for claims that transit workers hold specific forms of power in the global economy. The transportation industry sells, as Karl Marx wrote, "change in location" (Quoted in Harvey 2001:243), and transportation workers are a central part of capitalist production. Marx wrote that the transit industry's role of "the bringing of the product to market belongs to the production process itself. The product is finished only when it is on the market" (*ibid.*).[31]

The power of transportation workers is derived from their specific *locations* within the economy—i.e. the economy's distribution networks and the bringing of the products to market. Transit workers have strong bargaining power because their workplaces are enmeshed within key nodes of the economy. Workers, then, possess power through their structural ability to disrupt a vast range of economic activities from within their

31 In public transit, the transportation of people (the product) is produced and consumed in the same moment.

worksite. Labor theorists have defined "structural power" as the influence workers accrue as the result of their particular location of their workplace in the economy (Wright 2000, Silver 2003, Brookes 2013). In regard to transit workers, the sociologist Beverly Silver (2003) writes, "The source of their workplace bargaining power often is to be found less in the direct impact of their actions on their immediate (often public) employers and more on the upstream/downstream impact of the failure to deliver goods, services, and people to their destinations" (*ibid.*:100). When transit workers disrupt their production activities, many industries and employers are impacted by the upstream and downstream effects of labor unrest, not just the direct managers or employers of the transit workers.

Global capital's ever increasing reliance on transportation and communication systems, as well as global firms' increasing use of just-in-time production methods, may have actually enhanced the bargaining power of transportation workers world-wide. As Silver continues, "…The more globalized the networks of production, the wider the potential geographical ramifications of disruptions, including by workers" (Silver 2003:6). Neoliberal capital's preferred "spatial fix" to unruly or costly labor, where industrial activities are simply outsourced and moved to locations with less regulation or organized labor, is rarely an option because moving transit networks would cut off a region from trade and production. Moreover, roads, rail lines, airports, canals, etc. are large, fixed investments which cannot be easily outsourced or relocated.

In an analysis of the global labor unrest, Silver (2003) finds that transportation worker unrest made up the largest proportion of industrial actions worldwide during the period of 1870-1996. There were more labor union actions in transportation than in any other industry including manufacturing. Silver argues that transit workers have been

more willing to engage in labor unrest because of their relatively strong bargaining power. In the Bay Area, the high profile labor actions of recent years have been almost exclusively in the transportation industry, with the Muni sickout (2014), the BART worker strike (2013), and the Oakland longshoremen strike (2011).

Silver's analysis employs the category of the abstract-universal worker in order to make the argument that global capital is in fact vulnerable to worker resistance when unions are willing to organize across boarders. She draws from data on labor unrest in 168 countries over more than a century, yet she represents the conditions of power for the transit worker as being singular, or shared everywhere in the world. The sociological analysis of global labor converges with global labor's own rhetoric about the universal character of transit workers, as well as with scientific discourse about the shared bodily risks of transit work.

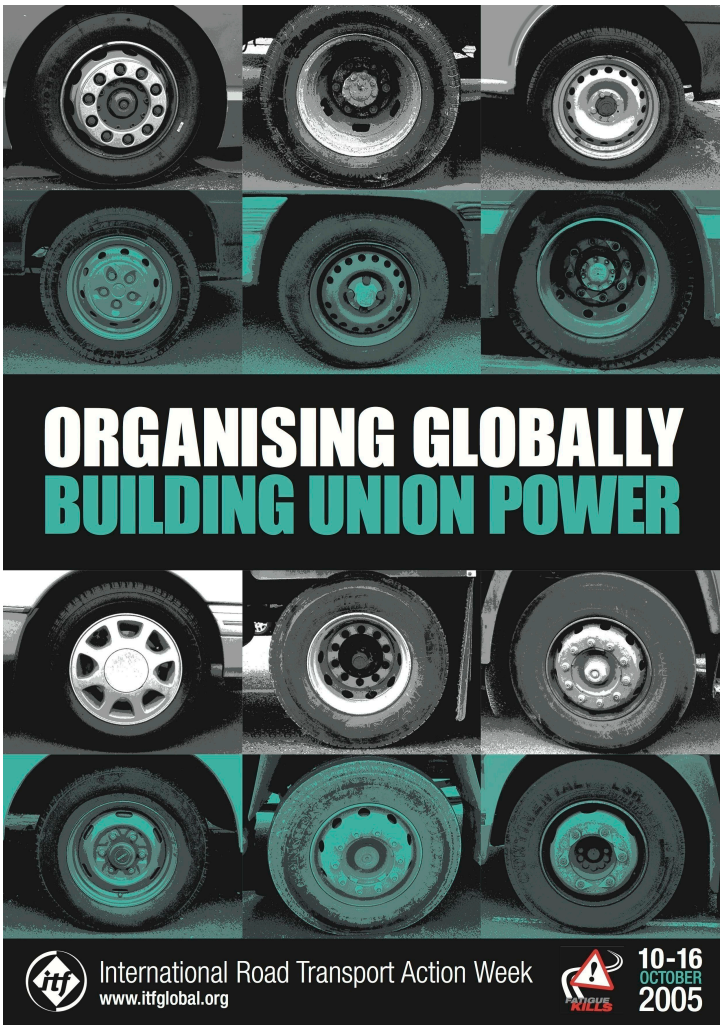
Global labor federations of transportation unions have been an organizing force for more than 100 years and have expanded in recent decades while unions in the industrialized West have declined. The International Transport Workers' Federation (ITF), the world's largest global federation of transport workers' unions, was established in 1898, when the London-based Federation of Ship, Dock and River Workers incorporated Swedish and Norwegian seafarers' unions into an international organization. The organization continues to be based in London is now composed of about 700 transport workers' unions in 150 countries, representing about 4.5 million workers.[32] The ITF currently has regional headquarters in Nairobi, Ouagadougou, New Delhi, Sydney, Tokyo, Rio de Janeiro, Brussels, Moscow and Amman.[33] The global reach

32 "About ITF," *International Transport Workers' Federation*, accessed March 3rd, 2015, http://www.itfglobal.org/about-us/moreabout.cfm

33 "ITF Regions," *International Transport Workers' Federation*, accessed March 3rd, 2015, http://www.itfglobal.org/about-us/region.cfm

of the union has enabled the ITF to leverage the structural power of its workers for multinational actions.

The ITF also mobilizes an abstract-universal category of the worker in its rhetoric and organizing activities. A study of the role of the ITF in the global maritime shipping industry found that the ITF represents workers "not primarily as national citizens … but rather as members of a global profession with universally certified and recognized skills" (Anner et al. 2006:16).



San Francisco's Muni drivers' TWU 250-A, along with the national Transport Workers Union of the America are members of the ITF. As one of the larger and more powerful affiliates, the TWU often takes part in organizing activities with the ITF.

Figure 1: International Transport Workers' Federation Poster

The main aim of translational labor alliances is to "compel employers to improve or maintain wage levels, working conditions, or labor rights," and "Strikes, pickets, go-slows, protests, rallies, boycotts, shareholder activism, legal appeals, e-mail blitzes, and formal and informal political pressure are just some of the tactics transnational labor alliances use in their campaigns" (Brookes 2013:182). These are generally the same aims and tactics of domestic labor unions, yet the scale of the actions differs. There are large variations in transnational labor actions, from dockers stopping work at multiple ports throughout the world, to hotel workers employed at a global hotel chain striking across the world. These kinds of world-wide actions have become increasingly common since the late 1990s.

An ITF-organized action targeting the United Parcel Service (UPS) in 1997 is seen by many as an inaugural moment in the global trade union resurgence (Mazure 2000, Brookes 2013). ITF officials I interviewed often referenced the story. That year, 185,000 members of the International Brotherhood of Teamsters went on strike in the United States. Because UPS is the dominant firm in the U.S. courier market, they could have endured a long strike. Targeting UPS internationally enabled unions to strike where the firm was the weakest. At the time, UPS was fighting to break into the European market and establishing a market share was a high priority. Therefore, strike action in Europe was far more threatening to the company. The ITF established communications and arranged meetings amongst UPS unions in "the United Kingdom, France, the Netherlands, Belgium, Italy, Spain, Canada, Brazil, Ireland, and the United States" (Mazur 2000:87). On a single day in the spring of 1997, the company was hit with 150

workplace actions across Europe, the United States and in the Philippines as well where workers shut down UPS operations in Manila (Brookes 2013). As a result of the action, UPS gave into terms seen as favorable to the union, and the workers won many concessions including longer rest breaks, better health insurance, and more safety measures.

"Stress is a Trade Union Issue"

I attended a two-day, ITF-organized conference about health in the transit industry held in a downtown San Francisco conference center. At the meeting, I could observe the intersection of the unionist construction of the global transit worker and the scientific representation of universal transit worker health risk. The meeting was sponsored by the Road Transport Workers Section of the ITF. The traditional road transit industries include urban transit, taxi cabs, postal couriers, and trucking. However, there were also union representatives from passenger and industrial railways and commercial airlines. The Transport Workers Union of America alone represents workers in the major public transit systems of New York City, Houston, Philadelphia, Miami, Columbus, and several other cities. San Francisco's TWU Local 250-A did not attend the conference because the union was in the midst of a contentious election and turn-over of leadership. The TWU's New York City's Local 100 is the largest local in the country, representing at least 38,000 active members working in the city's public transit system. Several Local 100 representatives were at the meeting.

Meeting attendees arrived to the hotel conference center from many U.S. and Canadian transit agencies and firms, as well as from the U.K., Australia, Sweden, Norway, Netherlands, Bulgaria, South Africa, Japan and other countries. Most of the

presentations were given in English with simultaneous translation to multiple other languages. The translators sat in the back of the room, enclosed in soundproof boxes, and broadcasted the translations over headphones. Along the edges of the conference center, there was literature spread out on tables—pamphlets, manuals, DVDs, scientific articles, books—on transit health, safety and labor politics in English, Spanish, French, Russian and other languages. Most of the conference presentations were given by union representatives who had been elected into health and safety positions by their unions.

The opening presentation was given by the director of the Road Transit Division, a former transit worker from Japan, now based at the ITF headquarters in London. During his remarks, he stood at a podium and called upon the union representatives in the room to remember that "global solidarity" plays a central role in "turning the tide in favor of workers." Furthermore, he suggested that health and the prevention of work-related injuries and illnesses should be the basis of global solidarity. He said, "Lets talk about empathy. We have a special notion, an injury to one is an injury to all. If you see someone getting hurt as a human being you can feel like you are being hurt. And this is something important to keep in mind."

Union representatives at the meeting expressed their solidarity by consistently using fraternal language throughout the conference. When speakers were introduced, their names were prefaced with "brother" or "sister" and speakers often addressed the audience as "brothers and sisters." After the introductory presentation by the Japanese director of the Inland Transit Division, the moderator said, "Let's thank brother Mac for his presentation." When speakers referenced each other during presentations they continued to use the fraternal language by saying, for example, "our brother from South

Africa" and "our sister from the Canadian auto workers." The fraternal language was less common during casual conversations.

Presentation topics included stress, violence prevention, fatigue management, negotiating for better wages, safety reporting systems, employer responsibility, and developing allies and networking. A large amount of the distributed literature was about HIV risk, however there was only one presentation on HIV by a South African labor representative. He presented his local union's strategy of framing HIV as a "workplace discrimination issue." The employer had been firing workers who, in order to receive treatment, disclosed their HIV status. The union challenged the employer's practices and "won the case."[34]

On the second day of the conference, a Canadian worker health organizer named Mary handed me a bright pink, fluorescent sticker with the word "*STRESS*" printed on it. She requested that I affix the sticker to the part of my body where I felt the most stress symptoms. I stuck it to the middle of my forehead and sat down next to a Norwegian ITF official who also put a sticker on his head, at the temple, and a union representative from Belarus who stuck it on her chest. The ITF official said that most of his work involves writing and it gives him headaches. The Belarusian woman said that sometimes her heart pounds all day.

The exercise was part of workshop entitled "Body Mapping" which Mary had designed, as she told me later in an interview, to be "An effective tool to get people to talk about what is going on with their bodies because people will never otherwise talk

34 During the presentation he said, "When people first find out that they have HIV, they go out and do not use protection. That on its own is a crime because you are killing others that are innocent," seemingly endorsing the criminalization of HIV transmission.

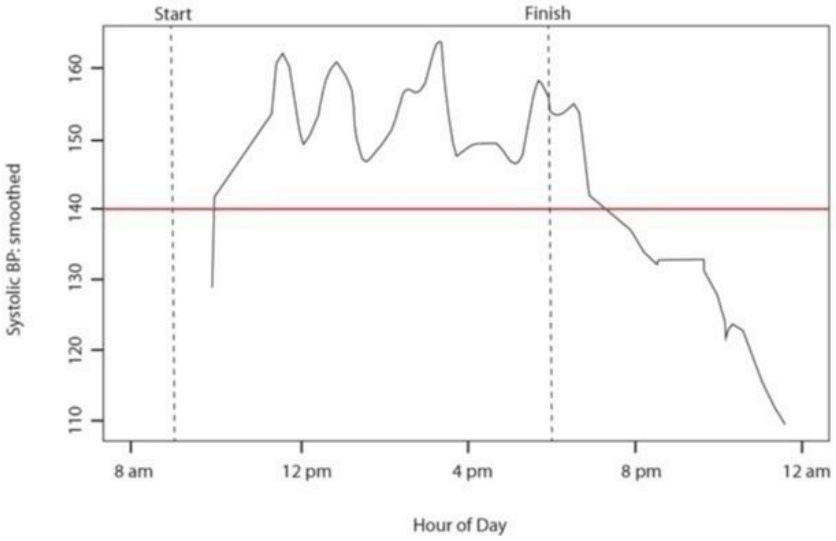
about their bodies. It's a tool to make aches and pains and stresses visible because otherwise they are invisible." During the presentation, Mary told the audience that most stresses and illnesses are invisible, and because we cannot see them, we experience them individually, not realizing the shared nature of the suffering. Mary related the experience of a transit worker partaking in this exercise who said that, after 25 years on the job, "This is the first time I've known I'm not alone in my pain." Mary's contention is that once workers realize, through the visibilization, that they share stresses and pain, they can then begin to discuss collective strategies for addressing their causes.

In the next step of the exercise, Mary gave us pieces of paper with drawings of the front and back of a human body asked us to place orange fluorescent dots on the parts of the body where we feel pain as the result of stress. I put one sticker on the front of the head and another on the back between the shoulders. Mary then collected the sheets of paper and, in the front of the conference room, created a single "body map" on a poster-sized image of the body, based on everyone's individual symptoms. By the time she finished, the poster had at least 100 orange dots on it, representing all of the stress-related pain reported by the participants, with clusters located on the lower back, upper back, head, chest and forearms.

This step of the exercise was meant to "make visible" the patterns of stress and pain that otherwise remains unseen. Mary said, "Now we can see patterns and we can talk about what the commonalities are." Mary walked us through an example of how union organizers should use this exercise with transit workers. Once the organizer creates the body map, she should then ask the workers to identify work-related causes of the different stresses and pains and write them on the poster. In urban transportation, according to Mary, drivers usually end up associated bodily symptoms with not being

able to take bathroom breaks and with the pressures of the schedule. Mary said, “Then I explain that there are several ways to look at this, and tell them that based on the research, what stresses us out is not the demand, demanding jobs are okay, but it is having too many demands and no control. They are following a schedule designed by somebody else, and told that they have to follow rules that are made by somebody else. They have no ownership or control over the rules. You might start by talking how they are stressed out by waiting for seniors to sit down on the bus but then you end up talking about who makes the rules.” The aim of the exercise is to connect bodily symptoms of stress to specific work rules and policies that the union can then work to change.

The conference’s keynote speech was given by a senior scientist from the Muni Stress and Hypertension Study. The scientist began by presenting unpublished graphs of public transit workers blood pressures throughout the working day. See Figure 2 (next page).



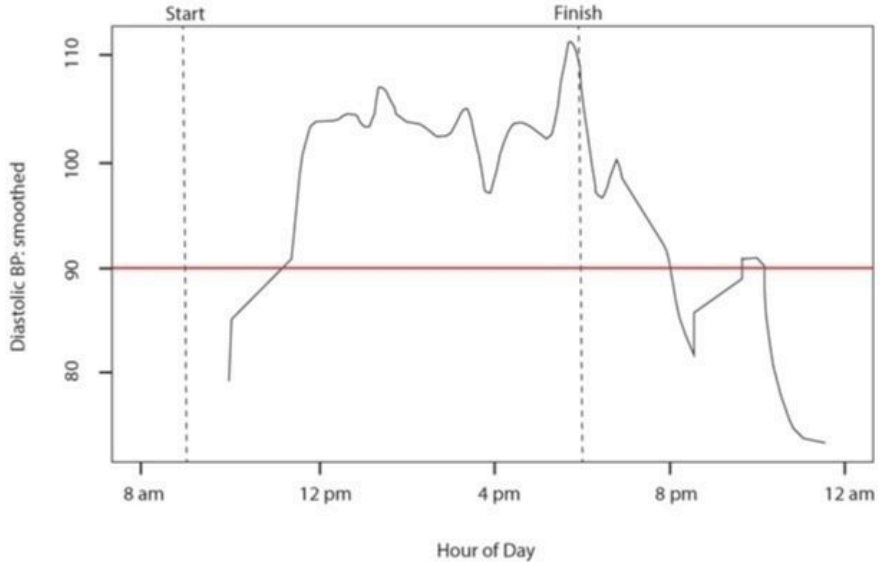


Figure 2: Systolic and Diastolic Blood Pressure of Urban Bus Drivers through the Workday

This scientist was involved in the development of the world literature since the early 1980s. After describing some of the history the stress research she said, “We began to find that the problems were not unique, but universal.” While the presentation focused on urban transit workers, he said, “Almost everything I am talking about applies to truck drivers and taxi drivers, with variations of course.” She listed the universal transit workers stressors as follows:

- Violence
- Scheduling
- Passenger interaction
- Traffic
- Lack of supervisory support
- Shift work
- Long hours
- Lack of bathrooms and time for such breaks

This scientist travels around the world presenting these findings and finds that drivers always agree on the stressors. “The job is the same everywhere in the world,” she said. She gave the presentation about the Muni Stress Study to union workers in Johannesburg, South Africa, and at the end of the presentation “They were confused. They thought the study had been done on them because it spoke to them so closely. They wanted to know, when did you do this study on us? Because they were in exactly the same position.” During subsequent discussion, she said, “The overarching problem for urban transit workers is the schedule” (see Chapter 2 for discussion of scheduling). At

the end of the presentation, the audience stood to clap, which they had not done for any other presentation.

The ITF, the Transport Workers Union of America, and other major transit unions have continued to stabilize the transit worker stress problem by supporting research, conferences and the circulation of health information. More than a decade ago, the ITF created an information pamphlet, derived from a Dutch scientist's analysis of the stress literature, entitled "Bus Drivers' Alert: Stress is a Trade Union Issue." The pamphlet was meant to advise labor representatives about the dangers of transit driver stress. It begins with the question, "Do the bus drivers you represent experience any (or all) of the following?" and proceeds to list a range of stress-related symptoms including headaches, frequent tiredness, upset stomach, difficulty sleeping, chest pain, and more. And then states, "If so, they are not alone." The rest of the pamphlet advises representatives on how to advocate for workplace changes that can reduce stress, such as limiting hours and ensuring rest breaks, evaluating ergonomic design, and increasing worker control over the environment.

Figure 3: Image of a stressed bus drivers from the ITF website.

Global labor, global health

Over the past two-decades, the ITF has often used health and safety issues as a platform for transnational labor organizing and building cross-boarder solidarity. In this last section I describe global campaign around limiting work hours and preventing HIV/AIDS.

Fatigue Kills

While the ITF has not organized campaigns around stress reduction, *fatigue* has been one of their central organizing concerns for nearly two decades.[35] In the West, fatigue and stress have been closely tied in popular understandings and in the sciences. Historians of science argue that psychological studies of and general concern about

35 Labor organizers told me about an emerging "fatigue management industry" in which managers have applied increasingly stringent health requirements on transit workers in the interest of safety. Several years ago, San Francisco Muni implemented a controversial new policy requiring screening for sleep apnea in all drivers above a certain body mass index. The aim of the policy is to reduce fatigue among the drivers. When a driver is diagnosed with sleep apnea, he or she is given a continuous positive airway pressure (CPAP) machine, which records data on its usage. The city of San Francisco monitors the CPAP usage and will revoke a driver's license if he or she fails to use the machine.

fatigue were the "earliest precursors to the current stress discourse" (Newton 1995:23). In the late 19th century, fatigue studies emerged from an interest in industrial efficiency and, during this period, neurasthenia was understood as fatigue brought about by the pressures of modern life. By the 1920s, "fatigue had become a general cultural metaphor [and] 'that tired, run-down feeling' made its debut as a popular culture concept and popular magazines debated the 'real meaning of fatigue'" (Abbott 1990:439). Stress and fatigue remain linked concepts.

While ITF representatives told me that stress is a major issue for many of their affiliated unions, they have not mobilized a global campaign on the issue. Stress has a variety of meanings in different contexts and it is difficult to craft a politically powerful message around stress. As Gordon et al. (2009) report, many workers do not like to talk about stress, as it can be seen a form of complaining and showing that one is "not up to the job." As one worker said in Gordon et al.'s study, "Stress is a dirty word to the union; it means you can't take it" (*ibid.*:185). I did not come across this perspective in my fieldwork with transit workers in San Francisco.

For a transnational labor movement, fatigue was a more salient and appropriate concept for describing the pressures and dangers of transit work than was stress. At a 1996 congress[36] in Paris, the ITF made a resolution to call upon all its affiliated unions to campaign for the reduction of working hours. They decided to call the campaign "Fatigue Kills" and frame fatigue as a safety issue. The overall aim of the campaign was to highlight the dangers of working long hours and to give transit unions throughout the world information and leverage in negotiations with employers over safety and work

36 The political structure ITF is organized by congresses held every four years where member organizations make and ratify all important decisions.

hours. Each year since, the ITF has unanimously voted to continue the campaign with an annual "day of action."

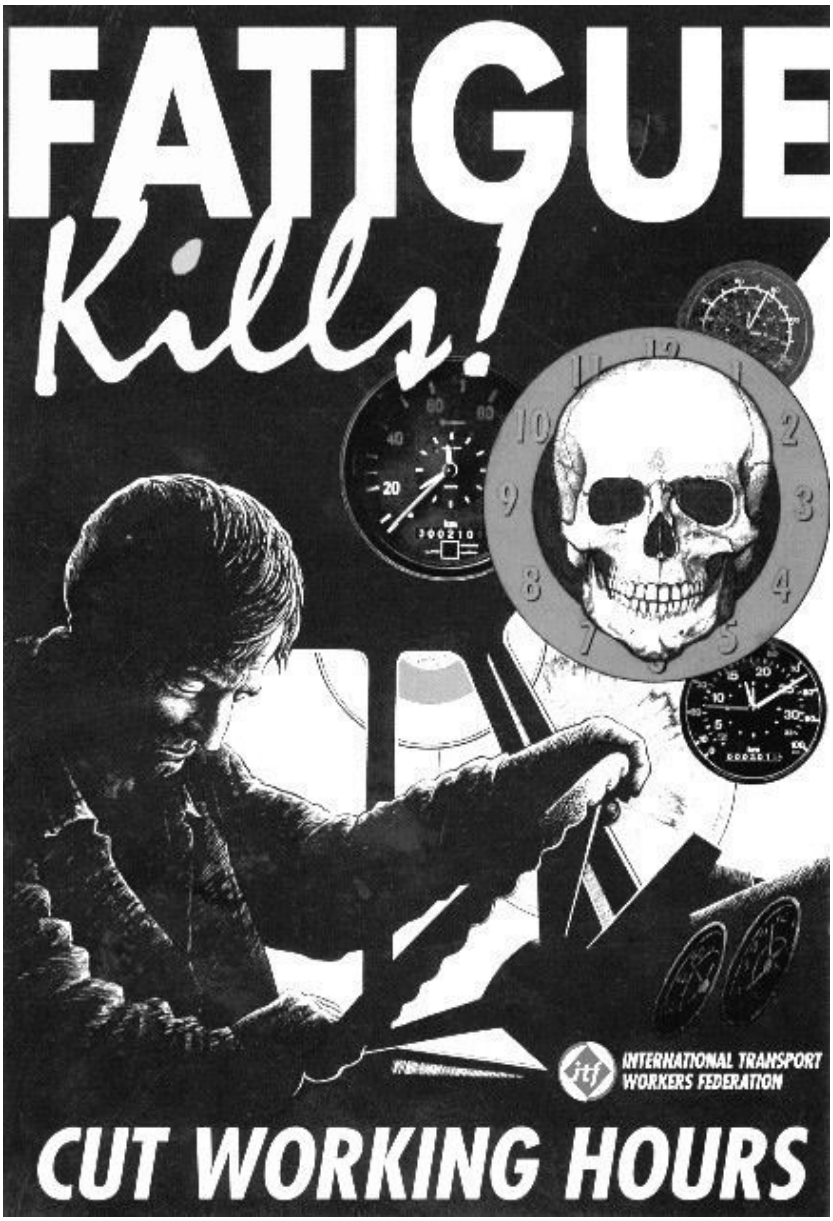


Figure 4: Fatigue Kills Campaign Poster

Early on in the campaign, the ITF gathered information about working conditions, produced reports, organized to create solidarity around shared problems, and promoted

industrial action. ITF documents state that the campaign aimed to unite "workers around the world whose conditions have undeniably deteriorated through deregulation."

The ITF conducted surveys and collected information from thousands of transit workers throughout the world. Figure 2 is an example of a postcard which the ITF distributed to local unions in order to collect information about perceived problems in the workplace. The Fatigue Kills surveys and literature were translated and circulated in at least 18 languages. The ITF also conducted an extensive survey and sent the collected data to a research institute in Germany for analysis. The report, published in 2000, found that nearly a third of non-European union affiliates were driving for more than 80 hours per week, and another quarter were driving 60-80 hours per week.[37] More than half of the surveyed drivers responded "no" to the question, "Do you think you can continue working as a professional driver until retirement age under your present conditions?"

37 The authors of the report entitled, "Professional Driver Fatigue Survey," state on the cover page that the data will be presented "by continent" only present data by European and non-European comparisons.

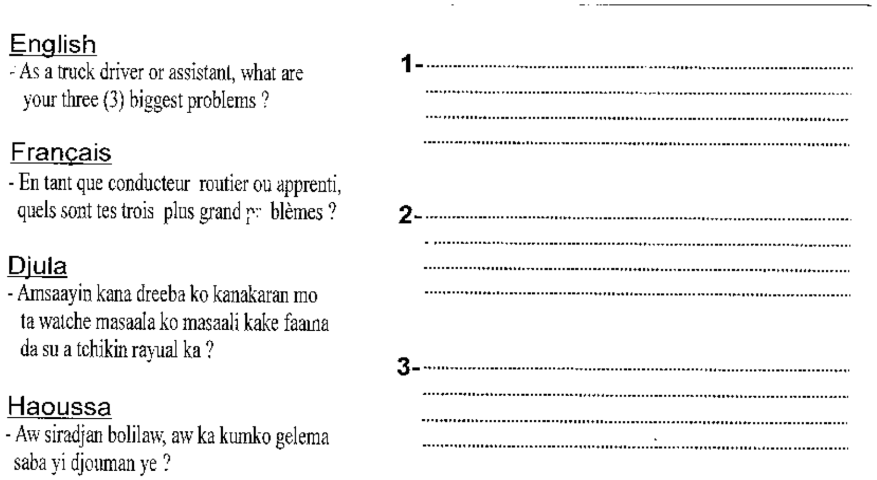


Figure 5: Front and back of "Fatigue Kills" postcard used for international organizing

The ITF settled on a set of demands to be taken up by all affiliated unions which included the demands to limit working hours to 48 hours per week, require breaks every four hours of continuous driving time, and require a minimum of 8 hours consecutive hours of daily rest period. The campaign culminated with "ITF Action Week" in October

of 2005. The campaign encouraged local unions to formulate clear demands and objectives, decide who to target, and to organize an action.

A DVD video about the global action was distributed to the ITF affiliates. In the video, which shows images of "Fatigue Kills" demonstrations on every continent, the narrator says, the "campaign has mobilized huge numbers to participate in a global activity at a local level. Activities have taken place in over one hundred countries, spread across six continents, mobilizing one million people. Cross boarder actions, demonstrations and various other activities have helped unions to change laws and have resulted in unions winning improved conditions for their workers."

In a report on the "Achievements of the Campaign," the ITF attributes many successful lobbying and negotiation efforts to the resources and organization the campaign provided. Some reported examples are as follows: In Bangladesh, trucking unions successfully lobbied for a new law mandating at least two drivers for shifts over eight hours of driving time. In Europe, working time regulations were put in place for road transport workers. In Chile, unions won reduced retirement age for truck drivers. Furthermore, it was reported that ITF affiliates throughout the world increased membership through the visibility and organization of the Fatigue Kills campaign. The report also states that "Unions in Iran, Turkey and India use action week to highlight trade union oppression."

Figure 6:Members of the Adarsha Auto and Taxi Drivers' Union, India.[38]

At the end of the promotional DVD, an unidentified union representative says, "We have influenced public opinion. The media now sees fatigue as one of possible cause road accidents and knows why some professional drivers are forced to work beyond their limits." Another organizer in the video says, "We've regained the confidence of the workers. Through our campaign we have become very visible and we have increased our membership by one hundred and fifty percent." Fatigue Kills action weeks have continued up to the present.

38 "Fatigue Kills Campaign," *International Transport Workers' Federation*, accessed March 4th, 2015, http://www.itfglobal.org/road-transport/fatiguekills.cfm

HIV/AIDS

A second major issue which the ITF identified as a global health and safety problem for transit workers is HIV infection. The agenda behind the ITF's HIV campaigns is to prevent discrimination and stigma against people living with HIV, use the workplace as a site for prevention and treatment programs, and to negotiate for resources and treatment. ITF literature reports that transit workers throughout the world have higher rates of HIV infection than other workers. Long-haul truck drivers suffer extremely high rates of HIV infection, especially in Africa and South Asia. Further, there is a high HIV infection rate among seafaring workers such as maritime and shipping trades. An ITF report states that "Transport workers are particularly vulnerable to HIV/AIDS. This is because of the nature of the work they do. In particular the fact that they spend so much time away from home in unpleasant and difficult circumstances"[39] The report mentions that at some trucks stops in sub-Saharan Africa, 75% of drivers test positive for HIV.

The ITF produces a large amount of materials relating to HIV including information books, statistical reports, action plans, reviews of global union activities, and documentary films. The organization publishes a bi-monthly "HIV/AIDs Update" and annual magazine entitled *Agenda*, which is meant "to provide valuable information to transport unions around the world in the fight against HIV/AIDS." *Agenda* is published in English, French, Spanish, Arabic, and Russian.

One ITF campaign aimed to lobby for "one stop" boarder crossing for long-haul truckers in East Africa. Sometimes boarder crossing takes days, and the local union wanted to get the wait time down to only two or three hours. As one union official

39 "HIV/AIDS: Transport Workers Take Action," *International Transport* Workers, http://www.itfglobal.org/files/publications/995/HIVMANUAL.pdf

stated, “They won’t have to spend so much time away from their families and we expect that the rate of infection will go down.”[40]

Again, the ITF represents the HIV infection as a global issue through the discourse of worker solidarity and uses media to remind unaffected unions that “An injury to one is an injury to all.” For example, in a report entitled “HIV/AIDS: Transport Unions Take Action,” the authors write that one of their biggest challenges is “the sense that HIV/AIDS is someone else’s problem and no longer an issue in Sweden.” They ask, “Sweden is a country in Europe with a good system of health and social welfare. It has a relatively low HIV prevalence, so why should Swedish transport workers be concerned about the disease?” The authors argue that unionists in Sweden should see solidarity with African unions and self-interest as going hand-in-hand because in a globalized world transit worker risk is shared across boarders.

Conclusion

Scientific articulations of the universal stressed transit worker and global health risks are, on the one hand, enabled by the existing global labor networks, and on the other, further union solidarity efforts. Scientists were dependent on labor organizations to gain access to the research sites, the carryout the day-to-day practices of research, and for connections to labor organizations and scientists outside of the U.S. The scientists’ collaboration with labor unions was also the basis for critical claims that the scientific research was politically interested and therefor biased.

This chapter suggests that organizing around health risks may be an important site of emerging forms of transnational solidarity. In the case presented here, global

40 From the “Highway of Hope” DVD produced by the ITF and used for labor organizing. The DVD was given to me at an ITF meeting.

solidarity calls on workers to identify with others on the basis of a shared occupation, rather than ethnicity, gender or citizenship. Further, solidarity asks people to identify with one another on the basis of their corresponding economic position (and interest) in the capitalist system. The ITF actively engages figures of the global worker and of solidarity in the production of the universal phenomena of transit worker fatigue and HIV risk.

Chapter 5: Workers' Compensation Law and the Politics of Injury

In this chapter I examine the role of the law in recognizing and compensating for the bodily harms of work. The institution of law holds the authority to define "injury," and to determine which harms are unacceptable and require compensation versus which harms will be accepted, regularized, and left to the individual to manage. Injury law negotiates how responsibility for injuries—or what theorist Lochlann Jain (2006) calls "the capitalist system's physical takings," (33)—should be distributed. In this way, injury law can be understood as a mediator between industrial processes—production and consumption—and the body. In arbitrating between acceptable and unacceptable injury, the law works to calibrate demands of economic growth against the necessities of human health. In this chapter I focus on workers' compensation law, which attempts "to codify how much of a worker's physical body may be spent in the process of production. 'Excess' wounding will count as injury" (*ibid.*:18). In particular, I consider how the emergence of "work stress" as a newly recognized form of work-related harm in the economy makes claims upon the law for recognition of a new causal nexus of stress, emotional reaction, and resulting injury.

In what follows, I first provide a brief history of the workers' compensation legal system in the United States. Second, I compare the divergent legal frameworks for addressing injured workers versus injured consumers. I suggest that the different legal treatment applied to injured producers versus consumers reflects a reconfigured U.S. political economy in which consumption has displaced production as the primary mode of economic participation and social belonging. Third, I consider the specific case of stress-related disease in California's compensation system in the context of the U.S.

"work stress epidemic." Fourth, I describe the perspectives of workers' compensation physicians towards Muni drivers. I find that physicians who treat Muni drivers in workers' compensation clinics are largely distrustful of the drivers' claims to work-related illness and instead blame the workers' chronic disease on their consumption of food and alcohol. Lastly, I conclude by considering the special status of police and corrections officers under the law. These occupations are covered by "presumption" laws, which dictate the compulsory recognition of a work-related cause of stress-related disease. Legislatures have adopted presumption laws for law enforcement, despite the absence of scientific evidence showing workers in these occupations to have a higher risk of disease. This case demonstrates that the political status of an occupation has a straightforward impact on legal recognition of work-related harms.

Worker's Compensation Systems

Workers' compensation systems throughout the United States were initially created to address work-related injuries, and in most states have been expanded to include illnesses and overuse syndromes. Each state has its own legal framework for workers' compensation. The first workers' compensation legislation was passed by New York in 1910. By 1920, nearly all states created compensation systems, with Mississippi being the last state to pass workers' compensation legislation in 1948. Workers' compensation systems were the first form of social insurance to gain acceptance in the U.S. and are often considered the foundation of the modern welfare state (Howard 2002). Workers' compensation remains one of the largest components of the welfare system with at least $60.2 billion in benefits paid out per year (National Academy of Social Insurance 2014).

Workers' compensation everywhere in the U.S. is structured by a "no-fault" legal system in which workers are guaranteed compensation for work-related injuries, regardless of whether the employer or worker is at fault. Before the adoption of workers' compensation systems, workers had to prove negligence of the employer, often through costly legal procedures. Under workers' compensation systems, workers receive compensation for injuries or illness related to work or the workplace, even if the employer is not at fault. Furthermore, employers participating in workers' compensation programs are given tort exemption, or protection from lawsuits for the injuries caused by work. This compromise—where workers are guaranteed compensation and employers are protected from lawsuits—is known as the "compensation bargain." The structure of the legal system is understood as a political compromise between labor and capital, assuring compensation for workers and protecting employers from excessive costs.

According to Lochlann Jain (2006), a major impetus for the passage of workers' compensation laws was that "corporations realized that the fault discourse inherent to tort trials was an explicit critique of the morality of production. The substitution of the explicitly no-fault discourse of workers' compensation allowed companies to continue a paternalistic language of worker responsibility and accidents" (19). The no-fault legal system expanded workers' access to compensation, yet exempted capital from legal responsibility for the harms of production. The no-fault legal discourse protected capital from the moralistic language of tort law, which is organized by concepts such as wrongdoing, negligence, and responsibility.

Furthermore, scholars have interpreted the no-fault legal system as *regularizing* the harms of industrial production (Duncan 2003). The system defines industrial accidents

and harms as inevitabilities, to be dealt with as efficiently as possible. The regularization of industrial injury is in sharp contrast, for instance, to consumer law, where injuries to consumers of products are seen as always exceptional or anomalous. Injuries to workers are administered as a social fact of capitalism. Individual states, through the legislature, create workers' compensation boards which handle compensation claims. In many states, including California, the board releases a "fee schedule" which determines which forms of harm are recognized as work-related and the level of compensation for each form of harm. By contrast, when a consumer is injured by a commodity, compensation is determined by an individual judge or jury, and treated as a unique case. Workers with recognized injuries usually receive wage replacement for the period of disability or lump sum payments for permanent damage. For example, Federal Employees' Compensation Act determined that a government employee who loses a foot on the job receives 205 weeks of paid disability. The fee schedules defining the recognized forms of work-related harm have been a continual site of contestation and legislative reform.

The physicians I interviewed who work in compensation clinics described a continual series of rule changes and reforms shaping how work-related diseases are defined and compensated. One physician said, "It seems like every few years the state legislature hands down a new set of rules and a new layer of bureaucracy." Starting in the early 1990s, successive legislative reforms to the workers' compensation systems throughout the country began to circumscribe the authority of physicians to diagnose work-related diseases.[41] Before the 1990s, the success of compensation claims depended mostly on the authority and reputation of the treating physician. An occupational health physician explained in an interview, "At the time, there was no medical-legal review. If you had a

41 This history of compensation guidelines and stress claims is drawn from interviews with senior occupational health physicians.

good relationships with the employer and the insurer and they trusted you, whatever you wanted the insurer to do was done." On the other hand, if the insurers and employers did not trust the physician, they could deny claims with little medical or legal justification. The authority of the treating physician usually won out and, in California in particular, the number and costs of claims increased continuously through the 1980s and early 90s.

By the early 1990s, in California, new reforms were designed to rein in workers' compensation costs and foster a "return to work" approach of the compensation system, which aimed to reduce incentives for workers to rely on compensation payments. The payments in the "fee schedule" were reduced significantly. Moreover, the legal procedures for employers to contest a claim were streamlined, making it easier for employers to deny claims. Previously, if an employer contested a compensation claim, the dispute would be hashed out in court with opposing lawyers and what were referred to as "dueling docs." Following Jain's analysis, we can understand such overt legal disputes as sites of explicit, moral critique of industrial production itself. That is, when workers make claims to work-related injury in the context of a legal dispute, they often represent the workplace as hazardous, or as generative of their suffering, thus offering a critique of the capitalist-owned workplace and the production process. While some states retain this model, California's legislature eliminated these sites of legal dispute in the early 1990s with the institutionalization of a new form of bureaucrat known as the Qualified Medical Examiner (QME). The QME is certified by the state to make judgments about the work-relatedness of an injury or disorder. Now, when there is a dispute, the case goes to a panel of three QMEs whose decision as to the work-relatedness of injury or disorder is taken as the final word. Through this reform, the

harms of work are again represented as inevitable and folded into the rationalized administration of law, thereby excluding critical or challenging claims about the ethics of capitalist production.

Injured Citizens: From Producers to Consumers

What counts as "injury"—and just compensation for injury—are shaped by cultural, political and economic concerns. Critical social scientists have examined law as a primary institution for defining what counts as injury and for negotiating personal and social responsibility for bodily wounding (Scarry 1985, Jain 2006). In this section, I analyze the politics of injury in the United States by comparing how the law addresses injuries to workers (producers) versus consumers. I will show that the diverging legal frameworks for attending to the harms of production versus consumption reflect shifting political economic relationships between labor, capital, and the state.

We can begin with the observation that courts grant significantly higher awards to consumers who are injured by commodities than to workers who are injured in the process of making the commodity. For instance, in one case, a worker was eligible for up to $34,000 compensation when her arm was pulled into a bolt-making machine. As a worker covered by a compensation system, she had no legal right to sue the employer, even if there was gross negligence on the part of the employer leading to the injury. However, she was able to bring suit against the manufacturer of the bolt-making machine (as a consumer of the product), and received a $3.5 million award for her injury (*ibid.*).[42] In U.S. law, huge awards for consumer injury remain the norm. The awards to injured consumers are often high because the damages paid are meant to not

42 In most cases of workplace injury, workers cannot sue the manufacturers of the workplace.

only to compensate the injured person but also to serve a "punitive" function, to deter companies from allowing dangerous products in the marketplace. Thus, in the infamous case of a woman receiving $2.7 million in damages for burns from McDonald's coffee, the award was set based on corporate revenues. By contrast, the legal framework and court decisions in the compensation system are not intended to directly deter firms from providing unsafe workplaces. However, supporters of compensation systems reason that firms are incentivized to prevent injuries due to the cost of higher insurance premiums for more dangerous workplaces (Duncan 2003).

As I introduced in a previous section, workers' compensation diverges from consumer injury law in that the former is based on a "no-fault" framework while the latter makes explicit claims of wrongdoing or negligence. Critical legal analysts have interpreted the no-fault system, and the regularized fee schedules for injuries, as supporting a presumption that injury is always embedded within production processes (*ibid.*). In a 1917 Supreme Court case which set the legal precedent allowing states to set compulsory workers' compensation, the court described worker injury as "an expense of the operation, as truly as the cost of repairing broken machinery" (cited in Duncan 2003:453). Workers were represented as extensions of machinery, the breakdown of which is inevitable and does *not* require legal argument "over culpability or moral agency" (*ibid.*). In this way, the harms of capitalist production are recognized in advance, as a structural condition of work. And the costs of worker injury are spread out amongst owners of capital through a collective social model, one that anticipates and calculates the risks of wounding to workers.

By contrast, tort injury laws in the United States—such as consumer laws—presume a right not to be injured at all. The state of injury is treated as one of exception and is

represented as an infringement upon the right to bodily integrity. Lochlann Jain (2006) interprets injury law as requiring an injured person to articulate harm in a particular, constrained way which "forces the plaintiff to bring complaint that takes the form of harm as an exceptional form" (34). Each case of consumer injury is treated as anomalous, or as something that never should have happened. This is fundamentally different than the production side of capitalism, where workers' compensation systems treat work as something that will injure as a matter of course, and attempt to negotiate what will count as acceptable injury. Injury is always embedded within consumption (a predictable number of people will be injured by automobiles, cigarettes, keyboards, toasters, etc.). However, on the consumption side of capitalism, the law does not enable a regularization of injury.

While the law does not calculate or negotiate what will count as acceptable consumer injuries, companies often do in such actuarial practices. For example, car companies frequently calculate the costs of adding additional safety features to cars versus the costs to the company of consumer injuries and deaths. The divergent status of producers versus consumers is apparent in the moral criticism leveraged against companies that do regularize consumer injury. For example, Lochlann Jain (2006) explores this logic of public outrage over Ford Motor Company's practice of calculating the costs of consumer injuries and deaths, and engaging in risk/benefit decision making. In this case, known as *Grimshaw vs. Ford Motor Co.,* a 13-year-old boy received disfiguring scars when a car he was riding in was rear-ended at a low speed and burst into flames. A jury awarded him $125 million in damages, after deciding that his injuries were caused by poor gas tank design.

Through the court case, Ford's practices of regularizing (treating as not exceptional) injury and death became public. In deciding whether or not to reinforce a particular gas tank (a known cause of car fires), the company calculated the costs of the estimated number of injuries and deaths caused by fires and compared the number to the cost of designing a safer gas tank. "Setting $200,000 as the value of life and $67,000" (*ibid.*:41) as the value of a burn injury, the company calculated that it was less expensive to defer additional safety measures. The public outcry that followed "focused on the calculation tables…" (*ibid.*), which were seen as deeply cynical and as reflecting a moral violation of the consumer's right to be injury free. Jain interprets the windfall payouts ($125 million) to a select few as reproducing the logic in which injuries to consumers are exceptional or accidental to life under capitalism.[43] She contends that the law's emphasis on the exceptionality of harms—and thus its individual and accidental nature—obscures the structural condition of injury and its inequitable distribution in the United States.

Jain's analysis focuses on the exceptionality of consumer injury, but it does not attempt to explain the conditions supporting the continued normalization of worker injury. Why, in contrast to tort law, is it legally and culturally acceptable to recognize, in advance, that work will result in a predictable number of injuries, loss of limbs, and deaths for workers?

We can gain insight into this question by considering the reconfigured relationship between production and consumption in the United States. Many social scientists have claimed that, with the rise of neoliberalism in the late 1970s, consumption has overshadowed the production side of capitalism, and that this shift has resulted in a

43 An estimated 500-900 deaths were caused by this particular gas tank design.

marginalization of worker-subjects (Harvey 1990b, Comaroff and Comaroff 2001). As Comaroff and Comaroff argue, the 20th century was marked by "The emergence of consumption as a privileged site for the fabrication of self and society, of culture and identity" (*ibid.*:299). Along with the ascent of consumption as an increasingly important mode of economic participation and social belonging, consumerism came to serve as a primary mode of enacting citizenship under neoliberalism (Ong 1996). Historian Lisbeth Cohen (2004) argues that there has been an eclipse of production by consumption as a primary mode of enacting citizenship in the United States since the 1970s, writing that citizens "increasingly relate to government itself as shoppers in the marketplace"—e.g. as consumers (396).

The new salience of consumption corresponds to a devaluation of the production side of capitalism within the U.S. political, economic, and cultural fields. As consumption became increasingly entwined with citizenship in the United States, labor was eclipsed (Jameson 1991). Work and the workplace no longer functioned as primary sites of value and identity, as they once did. Comaroff and Comaroff write, "The factory and the shop, far from secure centers of fabrication and family income, are increasingly experienced by virtue of their erasure" (295), an erasure accomplished, in part, through global outsourcing and mechanization of work.

The neoliberal assault on labor and regulatory agencies began to dismantle both organized labor and consumer protection organizations. Consumer interest movements beginning in the early 20th century were initially closely tied to the labor movement (Sassatelli 2007). However, by the 1980s, consumer interest was resignified and positioned at the center of the emerging neoliberal society (Ong 2006). The

exceptionality of consumer injury corresponds to the exceptionality of the American consumer-citizen.

Stress in Compensation

U.S. law in general is resistant to the recognition of mental injuries, including the recognition of harm to workers caused by stress (Tucker 2010). Policy and legal frameworks generally define work stress as a mental or emotional response to work activities or conditions resulting in emotional or physical harm. Under the law, stress is categorized as a mental (as opposed to a physical) cause of harm.

Beginning in the early 1980s, workers throughout the country increasingly complained of stress and stress-related disorders. Many health experts claimed that workers in the 1980s and 90s were experiencing a new *epidemic* of work stress (Wainwright and Calnan 2002). By 1995, nearly half of all states moved to allow compensation for harms related to work stress (Brock and Buckley 2012). Work stress became the fastest growing segment of workers' compensation systems, and the cost of compensation systems overall escalated quickly. In the wake of drastic increases in system costs, many states have since restricted the recognition of stress-related harm. Today, only twelve states, including California, continue to recognize stress-related harm in workers' compensation law.[44] Within these states, courts have made it increasingly difficult prove that emotional or mental stimuli cause particular impairments.

Stress-related harms fall into three main legal categorizations: mental-mental, mental-physical, or physical-mental. In a mental-mental injury, both the cause and

44 The other states recognizing stress-related harm in compensation law are Alaska, Delaware, Hawaii, Indiana, Kentucky, Massachusetts, Michigan, New Jersey, New York, Oregon, and West Virginia.

effect are located within the psyche. An injury is regarded as mental-mental, for instance, when a psychological experience of work stress results in a psychological disorder such as depression or substance abuse. An example of mental-physical injury is when workplace stress causes heart disease. Both categorizations of injury require evidence of a mental *cause* of the disorder. By contrast, physical-mental injury has occurred when, for instance, a broken leg causes depression. Physical-mental injuries are universally recognized in compensation law throughout the country, provided the original physical injury is work-related. From the 1980s to the present, "job pressures" resulting in mental-mental or mental-physical injuries have accounted for the highest percentage of workers' compensation stress claims (about 75%), followed by harassment (Bale 1990, Brock and Buckley 2012).

California is among a small minority of states that allows compensation for harms caused by an accumulation of everyday job stresses, whereas most states require proof of "unusual" or "extraordinary" stresses or traumatic events. California saw a drastic rise in the number of stress claims in the state's workers' compensation after a 1982 court ruling established a broad, subjective standard for recognizing psychological injury under the law. The case found that Judith Bradley, a cake decorator, should be compensated for a psychological disorder caused by her "subjective belief" that she was being harassed at work—specifically that she was being subjected to malicious schedule changes and ridicule. After a dispute with the bakery manager about a scheduling conflict, Bradley suffered an anxiety attack and required a week-long hospitalization. The treating psychiatrist testified that it did not appear that Bradley was actually harassed and that she "showed an ongoing personality disorder that could 'have hypersensitized her to the stressful experiences at work and even colored her perception

of those experiences'" (Matsumoto 1993:1341). While Bradley may not have actually been harassed, the court did affirm that she *believed* there was harassment and this belief constituted a work-related cause of her disorder. The court decision stated that stress was in fact subjective, as "[W]hat is stressful to one is not to another" (Quoted in Bale 1990:403). Further the court clearly stated that disability could result from "cumulative, everyday 'stresses and strains,' and that a mental injury was 'as real and disabling as a physical injury' to the person who experiences it" (Matsumoto 1993:1342).

Through this case, the court established a new broad, subjective standard, allowing legal recognition of a wide range of mental-mental claims. Proponents of the new standard argued that it better enabled the legal system to fulfill its aim of compensating injured workers. While a legal basis for stress claims was established there were few guidelines for physicians, insurers, or employers to follow in deciding the legitimacy of claims. As one physician said in an interview:

> There was no real standard in the 80s. If somebody said you had a stress claim, it was like, you had a stress claim, a psychological injury. So if I saw somebody come in, a truck driver or factory worker or a newspaper journalist whoever, and they had anxiety, tension, stress or whatever in relation to work, in my opinion, as primary treating doc, if I thought that there was causation [from work], I could just say that and have it recognized, even if all I had was their symptoms and their story.

This broad standard enabled many workers to make successful stress claims. Opponents of subjective standards argued, as more than one court has stated, that

recognizing mental causes would "open a flood-gate for workers who succumb to the everyday pressures of life" (Tucker 2010:478). Indeed, by 1988, California saw a 700% increase in workers' compensation claims for mental-mental injuries, the hardest-to-prove category of stress-related harm (Matsumoto 1993).[45] Other critics asserted that the recognition of mental-mental claims upsets the delicate political balance struck through the "compensation bargain," in favor or workers (*ibid.*)

What accounts for the huge increase in claims of work stress and stress-related disorder among workers? In both academic literature and popular media, debate about this question falls along two broad lines. On the one hand, many health specialists argue that the rise in stress claims is symptomatic of increasingly stressful working lives (Karasek and Theorell 1990). On the other hand, others argue that an intensified "psychologization" of society and new legal recognitions of psychological injury drove the work stress epidemic (Wainwright and Calnan 2002). In the latter view, constructivist analysts and legal critics converge in challenging the "reality" of stress-related disorder.

A realist view of the stress epidemic understands the rise of stress claims and stress discourse to reflect new material conditions and harms of the economy, especially increased work hours and work intensity (registered as productivity). Social scientists have documented that, by the late 1980s, Americans were working harder and longer than at any point in the post-war period (Schor 1993). Beginning in the late 1970s, Americans started to work increasing numbers of hours and experienced a continuous decline in leisure time and quality of life (*ibid.*). By 1990, Americans worked an average

45 Other analyses show that stress claims increased 700% nation-wide between 1988 and 1998 (Brock and Buckley 2012). In California there remain about 3000 stress claims per year, yet the number was twice that many in 1990. The average award for a stress claim in California is $15,000, in contrast to a national average of $3,420 (*ibid.*).

of one month per year more than in 1970 (*ibid.*). Between 1978 and 1998, the average work year for American "couples" increased by 700 hours (NIOSH 2002).[46]

Along with increased work hours was a decline in time spent on basics like sleeping and eating (Schor 1993). Health specialists understood the proliferating stress discourse to reflect the new reality of longer work hours. Furthermore, in this view, the transition to a predominantly service-based economy, with its demands for cognitive and emotional labor (Hardt 1999), produced new "psychosocial risks" which took a heavy toll on workers (Karasek and Theorell 1990). The increased costs of workers' compensation systems created by stress claims was seen as an outcome of these changes in the material conditions of work.

By contrast, other analysts understand the proliferation of work stress discourses to reflect a socio-political phenomenon in which ever more institutions and domains of society have undergone "psychologization," where psychological language becomes the dominant way of representing and organizing truths about persons (Wainwright and Calnan 2002, Rose 1998). In the 1980s, along with the proliferation of psychological discourse, was a massive growth in the number of mental health professionals (Karasek and Theorell 1990). During this period, stress concepts were central to both popular and academic constructions of psychological selves (Becker 2013). The *New York Times* published its first article about stress and health in 1976, and within a decade stress concepts could be found in the popular media on a near-daily basis (*ibid.*). Academic publications on stress have increased by a factor of ten (*ibid.*). Leftist critics have framed psychologization (along with the rise of stress concepts) as a depoliticizing and individualizing discourse, situating the cause and solution to problems within

46 By the late 1990s, a record 30% of workers reported experiencing high levels of emotional exhaustion at the end of the work day (NIOSH 2002).

individuals and their psychological processes rather than in social structural conditions (Wainwright and Calnan 2002, Becker 2013).

Conservative critics have portrayed the rise of psychological and stress discourses as promoting a "therapeutic state" which authorizes the expansion of welfarist policies (Nolan 1998). Under the guise of a therapeutic ethos, new policies open the state to ever more claims of harm and reparation for citizens. In this view, the psychologization of society (the expansion of a therapeutic ethos) threatens to weaken the "character" of Americans and diminish the power of the nation itself (Sommers and Satel 2005).

In permitting claims of injury for everyday hassles, critics often portrayed the institutionalization of work stress as promoting fraud of the welfare system. During the period of increasing stress claims in California's workers' compensation system (1980s), policy and legal analysts began to assert that there was widespread "fraud and malingering" on the part of workers (Matsumoto 1993:1338). In this view, allowing legal recognition for something as "intangible" as stress contributed to a wave of compensation fraud, which had become a "$1 billion problem in the state" (*ibid.*). Workers making stress claims were often framed as exploiting the U.S. welfare system. By the end of the 1980s, employers began to fight stress claims more aggressively, spending increasing amounts of money on litigation, yet the number and cost of successful claims continued to rise. In the midst of these debates, California state legislators moved to limit the ability of workers to make claims for stress-related harms. In 1989, California law was amended to challenge the broad subjective standard by requiring the presence of "actual events of employment." Presumably the legislature intended this language to exclude subjective misconceptions of work-related events. However, by not defining "actual events" in the statute, the standards remained up for

debate and interpretation by courts (*ibid.*). A 1993 reform stated that work had to be the "predominant" (at least 51%) cause of the mental injury, while previously there was no specified limit. Similarly, for mental injury caused by the stress of violence in the workplace, the law now specifies that the violent incident must contribute to 35% of the resulting disorder. Consequently, California remains the state with the highest numbers and costs for stress-related workers' compensation claims.

In the Clinic: Workers as Consumers

In this section, I describe how physicians who treat Muni drivers for work-related conditions understand the connections between work, behavior, and disease. All the physicians I interviewed were aware of the Muni Stress and Hypertension Study and regarded the drivers as a population with unique health risks. At the same time, each physician expressed skepticism of the Muni drivers' claims to work-related injuries and illnesses. Two main themes emerged in the physicians' responses to questions about the link between work stress and health: 1) There are many behavioral factors besides working conditions causing disease, primarily food consumption and alcohol consumption, and 2) Muni workers commit fraud and abuse the workers' compensation system.

Occupational physicians work at the intersection of medicine and law. Determination of the work-relatedness of an injury or illness involves both a medical diagnoses and a legal judgment about responsibility for the harm. The legal processes of negotiating responsibility and compensation are central to the diagnoses and treatment of injured workers. As one physician told me, "It's totally different than any other specialty of medicine. We are intertwined the employer community, the insurance

community, and the legal community and the law, unlike any other practice of medicine." Foucault (2003) identified the joining of medical and juridical discourses with the emergence of "expert opinion" as a key feature of the administration of state power. The institutionalization of the Qualified Medical Examiner (which I introduced previously) is an example of the new medico-legal expert. The medico-legal expert, in this case the worker health physician, brings normative legal rationalities into the sphere of medicine, and vice versa. In what follows, we see that physician claims about the work-relatedness of Muni drivers' disorders privilege the workers' consumption practices over their working environment.

Workers as consumers

Most occupational physicians I interviewed blamed food and alcohol consumption, along with sedentary "lifestyle," as the primary causes of the drivers' chronic disease. While there was a general acknowledgement that, as one physician said, "the job has some unique challenges and this probably does contribute," all the physicians identified the drivers' consumption behaviors as the primary cause of their disease.

I interviewed one physician named Dr. Brooks at his house in San Francisco. I asked him why he thought there was such a high rate of chronic disease among the drivers. He immediately responded, "Almost all of them are overweight. You know, incredible BMIs. We don't see how certain people can get behind the wheel." Dr. Brooks told me that Muni gave all the drivers gym memberships at 24 Hour Fitness, but that none of his patients went. Each time I pressed him about the role of the workplace in

causing disease, Dr. Brooks brought the conversation back to the drivers' lack of exercise, poor sleeping habits, and especially their poor diet.

Dr. Brooks was aware of the Muni stress studies, but he repeated the point echoed by many other physicians that the study was "biased towards drivers." Dr. Brooks said, "Look, what you see with these drivers is not unique." For Dr. Brooks, the drivers' disorders can be understood within a larger trend in the United States where there has been an increase in the linked problems of "overeating, central obesity, metabolic syndrome with hypertension, diabetes, abnormal lipids, early cardiovascular morbidity and mortality." He described the epidemic of obesity and heart disease as affecting, in particular, African Americans and those with lower socio-economic status, which fits the profile of Muni drivers.

Physicians also identified alcohol consumption as a major cause of the drivers' chronic disorders. I interviewed a physician at a clinic that treats many injured or sick Muni workers, and also specializes in addiction disorders. He was unequivocal that he believed alcohol use is the primary cause of the drivers' high blood pressures: "Almost all of the Muni drivers we see are hypertensive. We see people come in very hypertensive, on three, four and five anti-hypertensives. And it's never going to go down unless they stop the drinking. The main factor that is elevating their blood pressure is the alcohol."

The Muni Stress Researchers also recognized that alcohol was a significant problem for the drivers. At least five published papers link work stress with alcohol consumption in Muni drivers, showing that those with more stress consume more alcohol (Yen et al. 1999, Cunradi et al. 2003). The aim of these studies was to redefine high levels of alcohol consumption as an effect of a difficult working environment. Dr.

Johnston, from the Muni Stress and Hypertension Study, emphasized on many occasions that the significant alcohol consumption in the group is a "maladaptive coping mechanism" for the stress. Based on my interviews with occupational physicians, these studies did not change the dominant clinical view which frames alcohol consumption as a behavioral cause of disease.

I spoke with another physician at the same clinic who also stated that alcohol was a major cause of the workers' cardiovascular disorders. This physician linked the drivers' drinking to their culture. He said, "If you are around drinkers, you'll drink. Oh boy is that a problem with the transit workers. Especially football and baseball season because they drink too much when they watch the games. They get together as a group, their co-workers, their friends, their families all know each other. It's a great culture, but it's alcohol based."

By blaming the culture, this occupational health physician firmly situates the cause of the drivers' disorders outside of the workplace. I asked him what role of working at Muni plays in this culture, and he clarified that the culture he is describing is not specific to Muni drivers but is rather a broader culture in the Bay Area. He said, "Over years and years they develop these circles, these little groups, and they get together for sports events, sometimes they go to the games. We have a whole bunch of them who are part of the black hole."

I asked, "What is the black hole?" He responded that, "The black hole are those people you see on TV at the Raiders games dressed in black and all kinds of regalia with Vikings. It's called the black hole. They go to games together. They sit together. It's a huge subculture in Oakland, immense subculture, thousands of people. They are hardcore Raiders fans, and they drink hard."

Mistrust and compensation fraud

In the eyes of the physicians I interviewed, Muni drivers had developed a reputation for making unfounded workers' compensation claims. One physician described the drivers as being "notorious" for their attempts to get compensation and disability benefits.[47]

I interviewed Dr. Howard who headed the workers' compensation clinic for San Francisco city employees for many years. He expressed mistrust of Muni drivers by saying that he often had "difficulty believing in" the symptoms they presented. He explained that, due to the high rate of compensation claims from Muni drivers, "A lot of people in our workers comp clinic, a lot of doctors, became very jaded." The doctors became "jaded" particularly when they encountered repeated "mini-epidemics" among the workers. If one driver was successful in getting a workers' compensation claim, a wave of drivers would come into the clinic with similar symptoms. Dr. Howard explained, "The Gilley Room [where the drivers take breaks], is a really important part of Muni culture. The Gilley room is just like the gossip central, and I swear that they must spend all their time at the Gilley room. Everybody goes to the Gilley room and they all talk about their workers' compensation experiences." He believed that the drivers not only discussed how to present the proper symptoms to get compensation, but also discussed which doctors were sympathetic to the workers, and what days and times these doctors were working at the clinic. An example of a recent "mini-epidemic" was drivers complaining of excruciating knee pain that, in the physician's view, does not appear to correspond to a particular injury.

47 About 15% of the Muni workforce is out on disability at a given time. See Chapter 2.

Furthermore, several physicians were skeptical of the logic of the symptoms the drivers presented. To the physicians, the symptoms did not "make sense," and this led to mistrust. One physician from the workers' compensation clinic said, "What happens is that they come in with some of these incredibly bizarre stories about some of these physical symptoms that don't make any sense and you are sitting there scratching your head trying to give these workers some benefit of the doubt, but sometimes that was extremely difficult to do. We keep on running into that over and over again."

I was referred to one physician who was known for "having a soft spot for these guys [the Muni drivers]." I met him at his office and he told me that rather than being suspicious of the drivers when they come into the clinic, he believed that their strange symptoms could be a result of stress. He said, "Yeah. you do get all these things that are sometimes nonsensical that sometimes just sort of blow your mind. The only real explanation is that these are people who are incredibly stressed, who are going to manifest some physical symptoms as a result of their incredible stress, or else there are some people who are simply abusing the system; and there were some who are really abusing the system."

Each of the five physicians I interviewed referred to urban transit work as a uniquely stressful occupation. As one physician said, "The Muni employees are under an incredible amount of stress. You know, the fact is, they have very unsympathetic administration for the most part. The administration is punitive; and their attitude towards the drivers is punitive." Dr. Brooks, who emphasized that the drivers' disorders are a result of overeating and obesity, acknowledged the difficulty of the Muni work environment by saying, "You know, believe it or not, at one time, it was not uncommon for Muni drivers to carry weapons to work."

These interviews reveal that the physicians given the legal authority to determine the work-relatedness of injury and disease interpret Muni workers' chronic disorders through a framework that privileges their consumption practices. Furthermore, each physician expressed skepticism of the legitimacy of Muni worker claims to injury. Physicians recognized that Muni is a stressful working environment and, at times, acknowledged a connection between stress and overconsumption of food and alcohol. Yet they were reluctant to make any strong claims about the direct connection between stressful conditions and chronic disorders, instead relying on cultural explanations of individual behavior and suspicions of fraud to explain the poor health outcomes among Muni drivers.

The Authority of Law Enforcement

In this concluding section, I describe how legal recognition of stress-related disease in the United States is often obtained through political means, rather than through scientific evidence or legal argument. When workers in particular occupations in the United States—usually police officers, corrections officers, firefighters, or emergency responders—develop stress-related disorders the law unquestioningly recognizes a work-related cause. Known as "presumption laws," these legal recognitions cover forms of work that are presumed to be so stressful that any chronic disease is automatically regarded as work-related. There are no such presumption laws for transit workers, despite the established scientific evidence of transit workers' risk of stress-related disorder.

The occupations covered by presumption laws differ by state. Yet nearly all states have presumption laws defining hypertension and heart disease in police officers as

always work-related. Legislatures were willing to adopt these laws because of the widely-held, public view that police work is fundamentally more stressful than most other types of work (Bale 1990). In California, for instance, it is written into law that any police officer who suffers a heart attack is presumed to have developed the condition from the stress of work. The American Institute of Stress states that, for police officers, "The relationship between job stress and heart attacks is so well acknowledged, that any police officer who suffers a coronary event on or off the job is assumed to have a work-related injury and is compensated accordingly (including a heart attack sustained while fishing on vacation or gambling in Las Vegas)."[48]

Leading stress scientists believe that scientific evidence does not support the claim that police officers are at higher risk of stress-related disease. Legislatures adopt presumption laws through political lobbying, rather than on the basis of scientific evidence or public health concern. As a stress researcher based in Los Angeles told me, "Typically most of the presumption laws are non-scientifically based, they are more lay slash political understandings which are not scientifically based. The state decides, for example, that police and firefighters have certain legal presumptions of causation. Over the past 20 or 30 years things like heart disease and high blood pressure were presumed to be work-related without much science. But that didn't deter states across the country to adopt these laws including California." Dr. Wolfe, a distinguished stress researcher in New York City, echoed this point in an interview, stating, "The scientific research is not that clear that those occupations [covered by presumption laws] are at that much higher risk for heart disease than anyone else, but those occupations, because they had clout in

48 "Workplace Stress | The American Institute of Stress." Accessed March 20, 2015. http://www.stress.org/workplace-stress/.

the legislature through their unions, they got that presumption into a law. Here in New York that is police, fire, prison."

Dr. Wolfe was recently contacted by a large parole officer union and asked if he could help them pursue coverage by presumption laws in New York State. The parole officers emphasized that their work is highly stressful and comparable to the work of prison guards. The parole officer union had been pursuing various (unsuccessful) avenues to bolster their resources on the basis of stress claims, including a campaign to increase staffing and reduce their case loads. The union tried multiple times over the past decade to push forward presumption laws. However, as Dr. Wolfe said, they were repeatedly "turned down for political reasons at the state level."

The parole officers approached Dr. Wolfe with funding for a small study. Dr. Wolfe told the union that the funding was too little to "prove anything" but that he would do some preliminary research that might help their cause. Dr. Wolfe went forward with a study that used surveys, focus groups, and ambulatory blood pressure monitors to link perceived stressors at work with increases in blood pressure. While there were not quantitative findings, Dr. Wolfe said, "It was a great qualitative study in terms of describing what are the sources of stress on that job." Even after the study, the union was never successful in getting presumption laws. Dr. Wolfe said, "In the end, I don't think a research study can help them get that. They need political clout."

The near universal adoption of presumption laws for police officers and corrections officers reflects a popular understanding that the enforcement of law is both more important and more stressful than most other occupations (Bale 1990). Because of this popular understanding, legislatures and courts have been willing to treat police offers' claims to work-related harm with favor (*ibid.*). Transit workers, by contrast, are

politically disfavored. Despite and accumulation of evidence that transit workers have higher rates of stress-related disorder than most other occupations (Chapter 4), they have no special protections under the law.

Conclusion

This chapter argued that cultural, political, and economic concerns shape how work-related harms are recognized and compensated under the law. I charted the diverging position of producers versus consumer in injury law, and argued that consumer injury is treated as always exceptional, while worker injury is effectively normalized as an inevitable social fact of life under capitalism. The divergent treatment of the producer versus the consumer injury under the law reflects political economic changes associated with neoliberal capitalism, especially the dismantling of organized labor and the rise of consumption as a privileged site of belonging, social power, and the enactment of citizenship claims. The legal response to the "work stress epidemic" in California further illustrates how the devaluation of the worker as a political and economic subject constrains workers' claims to compensation under the law. While the law provides workers with a means to seek compensation for their work-related injuries, employers successfully avoid legal responsibility for having caused or contributed to these injuries. With the determination of responsibility for harm out of the way, workers are placed in a position of dependency on medico-legal experts—e.g. physicians—who have the final say in what counts as injury. In the case of transit worker injury and illness, I found that medico-legal experts mobilize a dominant medical gaze that emphasizes individual behaviors, and obscures structural and the work-related causes of harm. Furthermore, the medical gaze is oriented by suspicions of fraud and malingering

and by a distrust of workers' self-reported accounts of their injuries and illnesses. The political and contradictory nature of medico-legal judgments of work-relatedness is further illustrated by the exception of police officers and others who fall under presumption law. Police officers' heart disease is always presumed to be stress-related, even in the absence of scientific data showing that workers in this occupation are at a higher risk of stress-related disease. By contrast, extensive data documents the increased risk of heart disease for those working in public transit. However, transit workers are not covered by presumption laws.

Chapter 6: Worker biopolitics in a neoliberal age

Introduction

This chapter examines how the U.S. biopolitical state recognizes (and disregards) type of work as a significant cause of disease in the population. How does work and employment in diverse occupations matter to the state's management of public health? Since their establishment in 1970, state worker health agencies have advocated for more attention to and regulation of work-related diseases. However, by the early 1980s, deregulation and neoliberalization began to undermine these state health agencies along with allied labor organizations. In the current context of a weakened labor movement—and the reduced significance of the worker-citizen as a form of political subject—state occupational health agencies are confronted with severe restrictions of resources and power. At least as significantly, state health scientists and policy-makers are faced with critical shortages of meaningful health data. In contrast to most European countries, in the U.S., occupation information is infrequently included in the main sources of vital statistics, medical records, and health information systems.[49] Attempts by the state to know and intervene into work-related, bodily harms are characterized, above all else, by a *lack of knowledge*. At the same time, labor unions and medical organizations have advocated for the inclusion of occupation information in medical record keeping and public health surveillance as way of promoting knowledge of and resources for work-related disease.

The body of the chapter proceeds as follow: First, I provide a brief history of state apparatuses of worker health in the U.S., and describe the state's approach to the study

49 State biopolitical apparatuses in countries such as Sweden, Denmark and France produce detailed knowledge about the types and extent of disease across different occupations.

and regulation of work-related disease and work stress in particular. Second, I then consider the state's attempts to conduct surveillance of work-related disease in the population; in such attempts, shortages of occupational data become apparent. Third, I describe some of the interactions and alliances between the transit labor unions in my study and state health scientists. Union officials supported state-produced surveillance research showing transit workers to have higher rates of chronic disease than any other occupation. Fourth, I recount political efforts to get inclusion of occupation information within state health databases, giving particular attention to a recent campaign to include occupation as a standard demographic variable in electronic health records. In the conclusion, I consider the epistemic and political implications of how the U.S. government defines occupation categories for health and economic analyses.

For an analytic framework, I bring together Foucauldian and Marxist perspectives to understand the state's management of workers' bodies and health. I analyze how the state's management of population health serves as a basis for the expansion of state power as well as a domain for citizens to make claims for rights and resources. The case of worker health exposes a fracturing or incoherence of the state, where some state agencies advocate for the importance of understanding the population *as workers*, while others continue to exclude work as a significant site of health difference. This fracturing can be usefully understood through Marxist analyses which understand class conflict to be reflected in the state itself.

This chapter is based on interviews with university scientists, occupational health physicians, government scientists and state health officials. I also conducted a review of scientific and policy documents produced by an array of state agencies, as well as a

review of scientific journal articles related to the topics of worker health surveillance, work stress, and electronic medical records.

Biopolitics and the worker's body

Under what conditions does the state concern itself with the health and well-being of workers? In this section, I address this question by considering Foucaudian analyses of how *biological life* and *health* become fundamental subjects of political calculation and state power along with Marxist perspectives on how the operations of state power are structured by ongoing contestations between labor and capital.

Biopolitics describes the increasing concern by modern states with administering individuals and populations through biological understandings of health and illness. For Michel Foucault (1978), and subsequent theorists of the biopolitical (Rose 2007), the state addresses the health of the population as a means of controlling citizens and extending its own power. The state's concern with the health and welfare of the population is not a matter of virtue but of strength (Dreyfus and Rabinow 1983). Furthermore, biopower is not centralized within the state, but is dispersed through regimes of knowledge, techniques and institutions of health, and modes of surveillance.

Under conditions of modern biopolitics, *knowledge* of individuals and populations, understood as phenomena of biological life, is central to state governing strategies. Thus, a central feature of the biopolitical state is its use of statistical information about health and disease, birth and death, and a range of demographic information to simultaneously know and intervene into individuals and populations. Nikolas Rose defines biopolitics as, "strategies involving contestations over the ways in which human vitality, morbidity, and mortality should be problematized, over the desirable level and

form of the interventions required, over the knowledge, regimes of authority, and practices of prevention that are desirable, legitimate, and efficacious" (2007:54). As I will describe, the state's attempts to conduct surveillance of occupational disease reveals contestations over the authority of state agencies to define bodily harm and intervene into the population.

At the same time, the biopolitical forms that take shape through state concerns with health and welfare give citizens a new arena to demand and contest the exercise of state power. The concept of "biological citizenship" (Petryna 2002, Rose 2007, Heath et al. 2007) points to the ways that medical and legal definitions of injury and disease mediate citizenship claims and access to social welfare programs and protections. On the one hand, state practices of health promotion are forms of population management and control. On the other hand, citizens increasingly appeal to these same health institutions for recognitions of bodily harm or injury at the biological level. In the Foucaudian perspective, then, the state produces knowledge, builds institutions, and enacts policies addressing the harms of work as a way of both managing of the population and sustaining its own power and legitimacy. Policies protecting people from injuries and toxic exposures are part of a political strategy and not simply a humanistic expression. Furthermore, such modes of state address may be amended and or extended through citizenship claims.

Labor organizations have been at the forefront of efforts to gain resources, state recognition, and claim rights for those afflicted with new forms of work-related bodily conditions. However, discussions of biopolitics and biological citizenship (Foucault 1978, Rose 2007) have rarely overlapped with studies of changing conditions of work and labor organizing (Harvey 2005). This is surprising, as problematizations of workers'

health and well-being since the industrial revolution have been central catalysts for labor organizing and the creation of state policies regulating work environments and industrial processes. Exceptions to this gap in the literature include studies that examine how the expansion of neoliberalism is reshaping biopolitics (Comaroff 2007, Molé 2008). For example, Noelle Molé (2008) provides an ethnographic inquiry into the ways that neoliberal restructuring of labor regimes has remade the biopolitical field in Italy. The key finding of this study is that economic risks for workers induced by neoliberalism are refigured as biomedical risks, enabling citizens to make claims upon the state through public health structures but also producing new modes of medicalized surveillance of labor. These studies, however, do not account for the role of labor organizations in supporting state worker health agencies, or the contested and marginalized position of worker health agencies vis-a-vis the larger biopolitical apparatus.

In the United States, state agencies addressing the health of worker-citizens have a marginal position—these agencies are subjected to continual funding cuts, political attacks on their legitimacy, and restricted policy-relevance. Their marginal and disputed position within the larger state structure cannot be fully accounted for by a theory of the biopolitical, which often represents the state as a monolithic entity. I suggest that a Marxist analysis of how state power is structured by an ongoing conflict between capital and labor may be a useful supplement to the biopolitical perspective, allowing an account of conflict within the state.

In the Marxist perspective, workers are forced into situations of degradation and early death due to an uneven power relation between labor and capital. In contrast to the theory of biopolitics, where state calculations determine who to "make live and let

die," a Marxist perspective privileges economic relations in determining distributions of disease and death. In this view, capitalists' ever increasing drive for accumulation applies more and more intensity on the work process and continually degrades life for workers. In *Capital Volume 1*, Karl Marx describes how capitalist relations of production have resulted in damaging conditions for most workers. He depicts the harsh working conditions in various industries including baking, dress making, the match industry, and even transportation, where he describes the relation between overwork and death from railway accidents (Harvey 2010).[50]

Given the continual drive to exploit workers to the greatest extent possible, a capitalist system will result inevitably in the deterioration of life for the working classes regardless of the intentions or values of individual capitalists. In *Capital Volume 1*, Marx writes, "Capital therefore takes no account of the health and the length of life of the worker, unless society forces it to do so. Its answer to the outcry about the physical and mental degradation, the premature death, the torture of over-work, is this: Should that pain trouble us, since it increases our pleasure (profit)?" (in Harvey 2010:146). As David Harvey explains, "If your competitors shorten the lives of their laborers, you have to, too. That is how the coercive laws of competition work" (*ibid.*).

Marx's argued that capitalists are concerned with the health and well-being of workers only to the extent that health is required to maintain a reserve of workers, or what he calls the reproduction of labor power. When there is an excess of workers (surplus labor), illness and death matter less for the capitalist's bottom line, and thus, "A surplus population affects whether the capitalist has to care about the health, well-being

50 Railroad work became a highly hazardous occupation in the 19th century and, in 1889, the Interstate Commerce Commission reported that 22,000 railroad workers were killed or injured on the job (Abrams 2001).

and life expectancy of the labor force" (Harvey 2010:146). When there is a surplus of labor, capitalists do not care about the life or death of the worker. Otherwise, capitalists will act to mitigate the harms of work only when compelled by the state. When does the state compel capitalists to protect worker's lives?

In the Marxist perspective, state policies reflect the balance of power between labor and capital. While the state is ruled by capitalists, workers or others may compel the state to act in their interests. The state enacts protections for workers only when influenced to do so by various state constituencies, most centrally organized labor (and in some cases moral and religious reformers). In this view, laws protecting workers from industrial hazards are an extension of the will of the working class and are enacted against the interest and force of capital. The state is an expression of conflict and compromise between labor and capital (Wahl 2011), and in this sense, for Marxist theorists, the state is often analytically secondary to, or explained by, the primary relation of labor and capital.

State regulation of the length of the working day is an important early example of state intervention into the harms of work. As Harvey asks, "Why would a state ruled by capitalist and landlord agree to, or even contemplate, curbing the length of the working day?" (Harvey 2010:140). During industrialization, the length of the working day was a principal site of contestation between labor and capital, and was often discussed as a matter of human health. Overwork was recognized as a cause of illness and death. In Marx's manuscripts on capitalism, he cites multiple examples of people dying from overwork, such as a 20 year old dressmaker, who died from working 16 to 30 hour shifts without breaks (*ibid.*).

Capitalists fiercely opposed reforms and regulations, and the struggles for state regulation of the working day were often violent. State policies addressing work hours were established primarily through the actions of labor unions compelling the state to act against the owners of capital (Abrams 2001). Early state legislation meant to protect people from the harms of overwork limited the length of the working day, first for children, then women, and then eventually all workers. For example, in 1842, Massachusetts, the most heavily industrialized state at the time, passed laws prohibiting children under 12 years of age from working more than 10 hours per day and in 1876 limited women's work to 60 hours per week (*ibid.*).

Transformations of industrial production continually bring about new forms of bodily risk and harm (Beck 1992)—whether they be injuries and wounding (Abrams 2001), chemical exposures (Murphy 2006), exhaustion, strain, or stress (Karasek and Theorell 1990). In each of these cases, labor unions were central to the production of scientific knowledge about the harms of new forms of work and to the enactment of state policies protecting workers. In the United States, nearly all forms for worker health regulation have been strongly opposed by owners of capital, and have been won only through the political demands of labor organizations. Even after state institutions and policies addressing worker health were established in the United States, these portions of the state remain marginalized. State worker health institutions (analyzed in the next section) are supported and sustained through the actions of labor organizations. Labor can be seen as a stronger ally for state worker health apparatuses than broader state itself, as the U.S. state often acts to delegitimize its own worker health institutions. We can make sense of such contradiction within the state through the Marxist perspective on the primacy of class conflict in structuring the operation of state power. While the

framework of biopolitics, importantly, directs our attention to how state power operates by addressing the health and well-being of the population, it often elides the fractured and contradictory nature of the state.

State apparatuses of worker health

With rapid industrialization in the 19th century, injuries, illness and death related to working conditions increased drastically. During this period in Britain, newly formed working classes were subjected to significant decreases in life expectancy (Abrams 2001). The new configurations of economic production produced new stratifications of illness and death among working people which cannot be accounted for only through a state's governing logic of "making live and letting die."

Over the course of the 19th and 20th centuries, most industrialized countries enacted some protections for workers —such as limits on working hours—as the result of contentious and sometimes violent struggles between organized workers, owners of capital, and the state. However, workers in the United States remained largely unprotected from health and safety hazards on the job until the late 1960s. While systems of compensation for work-related harms had been established throughout the country since the 1930s, there were few regulations meant to *protect* people from injury, illness or death caused by work.

In 1970, the United State Congress passed the Occupational Health and Safety Act (OSH Act), giving the federal government, for the first time, the power to inspect workplaces and enforce health and safety standards. The act also established two new federal agencies: The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH). OSHA is the regulatory

branch and NIOSH is the research arm of the federal government's worker health apparatus. OSHA was established to make and enforce rules about workplace health and safety. NIOSH is charged with researching health and safety of workers and making recommendations to OSHA. In this chapter, I focus my empirical results mainly on NIOSH's role in producing knowledge about the relation between work and health.

The state apparatuses for monitoring and managing work-related disease in the population have their origins in the labor movement and in the wave of progressive regulatory reform of the early 1970s, which brought a range of new regulation to worker health, civil rights, environmental protection, and consumer protection. During this period, a number of other agencies were created with the intention of protecting citizens from the health effects of industrial production. These include the Environmental Protection Agency (EPA, 1970), the Mining Enforcement and Safety Administration (MESA, 1973), and the National Highway Traffic Safety Administration (NHTSA, 1970).

The initial passage of the OSH Act and the establishment of NIOSH and OSHA were seen as a victory for collective labor. Immediately after the OSH Act was first passed, business organizations tried to weaken the agencies by delaying passage of the act, delaying enactment of health and safety standards, and by challenging the authorization of new standards (Deutsch, 1981). Worker health institutions have continually been weakened and dismantled as a part of a broader assault on the power of organized labor and the advancement of neoliberal capitalism. The agencies remain aligned with and supported by organized labor up to the present day. As a research director at NIOSH told me, "Unions are where a lot of the political, you know, force came to actually get our agency created. We all recognize that unions are a major constituency for our agency." The subsequent conflicts over the power of OSHA and NIOSH to make and enforce

health standards reflects the continued antagonism between worker organizations and the owners of capital.

NIOSH's research offices and laboratories were positioned close to the industries they were charged with studying and regulating. The demand to regulate the highly hazardous coal mining industry influenced the establishment of NIOSH's main branch in Morgantown, West Virginia, as well as other major branches in Cincinnati, Ohio and Pittsburg, Pennsylvania. The first health hazards targeted by OSHA were exposures to asbestos, lead, silica, carbon monoxide and cotton dust. Through an analysis of scientific studies, OSHA officials produced standards stating the maximum legal exposure to these materials in the workplace. The very first standard, enacted in 1972, was for asbestos, and stated that employees may be exposed to a concentration of not more than two fibers per cubic centimeter (OSHA 2009).

Post-industrial forms of work have created new challenges to regulation. Many scientists I interviewed argued that, in the contemporary context, the model of regulation established by the OSH Act has become outmoded. This model is based in the paradigm of industrial production and the regulatory strategy of isolating specific and definable causes of injury or poisoning. Newer health conditions caused by stress and strain, such as repetitive strain injuries or carpal tunnel syndrome have become some of the fastest growing categories of work-related injury. Repetitive strain injuries result from ergonomic factors in the workplace which OSHA, despite huge effort, has been unable to regulate or even to categorize as a work "exposure." Workers also increasingly complain of new forms of low-level chemical exposure and sensitivity which the OSHA's regulatory model has difficulty recognizing and managing. A key example is what is known as "sick building syndrome" where workers are experiencing new, acute illnesses

caused from constant exposures to office building materials such as carpets and ventilation systems (Murphy 2006). Furthermore, as I will discuss, many NIOSH scientists and labor organizations see psychosocial stress as a significant cause of work-related disorder, but OSHA has not moved to regulate psychological harms.

The assault on unions beginning in the late 1970s corresponds to a range of efforts to limit the funding and authority of NIOSH and OSHA. The election of Ronald Reagan signaled a victory for the business organizations aligned against the agencies (Szasz 1984). The debilitation of OSHA was a top priority of the new Reagan administration (Calavita 1983). One of the founding moments of neoliberalism was the Reagan's confrontation with the air traffic controllers' union, and his breaking of their labor strike in 1981, signaling the start of an all out attack on the power of organized labor (Harvey 2010). The air traffic controllers went on strike on the grounds that they were subjected to unacceptable levels of stress and that many controllers were experiencing "burnout" from the job. The union claimed that air traffic control work is uniquely stressful and therefore the workers required special treatment and protections (Tesh 1984).[51]

By the late 1970s and early 1980s, an ideology of deregulation oriented industry's diverse strategies to limit the power of OSHA to enforce health and safety standards. The notion that too much regulation was the cause of the country's economic crisis—the inflation and flagging growth—was gaining force. In this view, the solution to the economic crisis was to give businesses relief from regulation of any kind. When Reagan took office as President, he appointed Thorne Auchter, an executive vice president of a large construction company, to head OSHA, replacing a trained epidemiologist who held

51 After all the workers were fired, the director of the Federal Aviation Administration (the employer) stated in an interview, "As for complaints of stress, I just do not believe controllers have been grossly overworked." (Quoted in Meltzer and Sunstein 1983:768).

the position. Auchter instituted a program of "cost/benefit analysis" to all existing and proposed standards. Work on new standards came to a halt while the agency devoted its energy to reviewing existing standards. The review of standards resulted in a weakening of many existing regulations and a 20% decrease in OSHA inspectors (Szasz 1984). Nearly all the new standards the agency proposed were challenged in court. As sociologist who studied the agency writes, "On every significant measure—total number of inspections, number of workers covered by inspections, average time spent per inspection, fines levied, inspections due to worker complaints, reinspections following findings of violations—OSHA enforcement had suffered" (*ibid.*:113).

The broader realignment of the state against the interests of labor under neoliberalism—the reversal and lack of enforcement of a many policies meant to protect the wages, benefits, health, and safety of workers—has been interpreted by Marxist scholars as reflecting the "shifting character of class power and class alliances within the state apparatus" (Harvey 2010:153). The trend towards deregulation and the disempowerment of labor unions also affected funding and support for research at NIOSH. As one NIOSH official told me in an interview:

> If you are a moderate to conservative politician, you don't see any value to OSHA or you hate OSHA. The SH is OSHA is the same as the SH in NIOSH and I can't tell the difference between those two agencies and I just don't like them. If you starve the brain then you starve the muscle. I think that is all about the politics of employer - employee war. Some people say, let's starve NIOSH, that way they won't have any money to train docs or do research.

Many scientists and physicians I interviewed said that occupational health has long had a marginal position within public health in general. Occupation science and medicine make up an ever diminishing field of health research and practice, and this is reflected in the significance of the esteem given to the state institutions regulating worker health. As one prominent worker health expert told me in an interview, "The greater world of public health preventive medicine has never really seen a role for occupational health. NIOSH has always been a step child of the CDC [the Centers for Disease Control, the overseeing institution]. There has always been very little respect for NIOSH. CDC is based in Atlanta and NIOSH is based in Morgantown and Washington DC. So here you've got this agency that is kind of a step child."

NIOSH and Stress

NIOSH scientists conduct a substantial amount of stress research and, through grants, the agency supports a wide range of work stress science, publishing and training programs throughout the country. One of NIOSH's major research groups is the program on Work Organization and Stress-related Disorders. The mission of this program "is to eliminate occupational stress, diseases, injuries, and fatalities in the workforce through a focused program of research and prevention addressing work organization risk factors for these outcomes."[52]

There is debate within the agency and in health policy circles about whether or not work stress is a valid object of research for the agency. The debate arises both from questions about the scientific evidence establishing the health risks of stress as well as from differing interpretations of the agency's legal mandate. The OSH Act contains what

52 "Work Organization and Stress-Related Disorders," CDC-NIOSH, last modified March 23rd, 2011, http://www.cdc.gov/niosh/programs/workorg

is known as the General Duty Clause which states that employers are required to provide a place of employment that "is free from recognizable hazards that are causing or likely to cause death or serious harm to employees."[53] Courts have determined that the stress-related harm caused by workplace violence, harassment or bullying is covered by the General Duty Clause. Workplaces are legally mandated to be free of violence and bullying. At the same time, OSHA does not define or enforce specific standards for these stress-related risks. Furthermore, there is no clear legal mandate to study or regulate the stress caused by problems such as overwork, conflicting demands, job insecurity, or lack of control. The general exception to the lack of regulation of stress is the laws governing work hours and schedules. One scientist described work hours and schedules as "by far more definable and concrete contributor to stress than are various forms of psychosocial stress," and U.S. law mandates breaks and work hour limits in particular industries such as transportation. However, these work time regulations are determined by concerns about public safety rather than the health of the worker.

Most NIOSH scientists I spoke with believe that stress is one of the most significant worker health issues today, yet it is also one of the least understood workplace "exposures." One scientist I interviewed said, "What we do know is that stress has a lot of very serious effects. Number one, hypertension and cardiovascular disease. Stress also has effects on mental health, particularly depression and other mental health outcomes. And for a long time it's been realized that psychosocial stress plays a role in musculoskeletal disorders as well." In their view, it is well established that stress causes disease. There are, however, significant knowledge gaps about the distribution of stressful forms of work and the rates of chronic disorder in the working population. A

53 Occupational Safety and Health Act of 1970,

NIOSH report on stress states that there is "no way of determining how the demands of work may be changing, and how these demands vary from one industry, occupation, or population to another" (NIOSH 2002:vi).[54] There is simply not enough available information to know if work in the U.S. is getting more or less stressful or to know anything about the trends of stress-related disease caused by work.

Several NIOSH scientists told me that stress research has been deprioritized within the agency. A researcher working in a the field of stress and cardiovascular disease said that a high-level director at NIOSH told her that despite the research, there simply is no connection between work and cardiovascular disease. This scientist said of the director, "He flat out told me that, you know, work has nothing to do with the cardiovascular disease, just nothing to do with it. And my jaw just dropped and I said, well what about all the research on hypertension for starters and he said well that's not cardiovascular disease. This is incredibly closed-minded. I was just really taken aback."

The program in Work Organization and Stress-related Disorders at NIOSH published an information book entitled *Stress …At Work*, where they argue forcefully that the state does have an important role in protecting U.S. workers from stress. The information book begins with an interpretation of the General Duty Clause, stating, "As part of its mandate, NIOSH is directed by Congress to study the psychological aspects of occupational safety and health, including stress at work." The description of the Congressional mandate to study stress is accompanied by an image (Figure 1) representing the institutional position of NIOSH as an outcome of a legislative act and part of a nexus of research and enforcement.

54 Again, this is in contrast to European countries where state scientists regularly carry-out detailed surveys about the characteristics and demands of work.

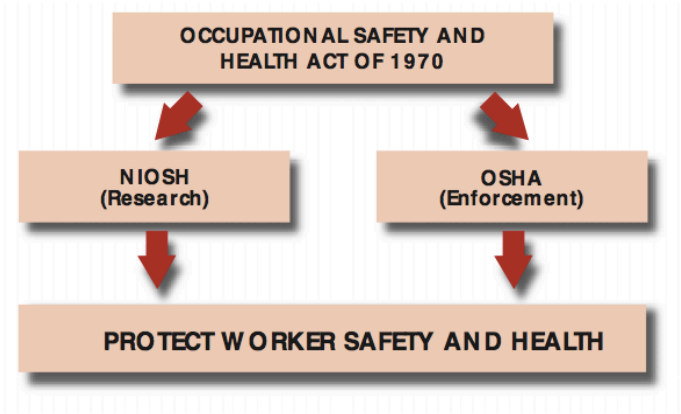


Figure 1: Image from *Stress …At Work*.

Despite the rhetoric of enforcement, many scientists across academia and government told me that the state's capacity to produce new health and safety standards has almost entirely broken down. A scientist who studies stress-related disorders at the NIOSH's Cincinnati branch said in an interview:

> In general, the model where we do research and when it reaches a certain point OSHA can formulate some regulations off of it is almost dead. It's been dead for quite a number of years… I mean, the whole process by which we formulate regulations with respect to exposure to chemicals is almost ground to a halt. And stress issues would be much more difficult. So I think the idea that we formulate regulations with regards to workplace stress is just almost beyond being contemplated.

Furthermore, this NIOSH scientist believes that there is concern among the NIOSH administration that an emphasis on stress would be "politically sensitive." When I asked

him why, he reflected on the general role of NIOSH and said that "NIOSH itself is sensitive. I mean, it produces research that is potentially burdensome for employers because it could lead to pressure to do things or even regulation and, you know, sort of stir up discontent with working conditions." In his view, employers have made it clear to NIOSH scientists that they dislike surveys about work stress and sources of stress because, as this scientist said, "they feel that they are inviting lots of whining and complaining and that there won't be any clear or easy way to handle it."

NIOSH stress scientists, for the most part, no longer intend for their research to inform regulation or policy. Instead, as one scientist explained, NIOSH's stress program simply aims to "lend credibility to the issue." The scientists now understand the research mission of the agency to be directed towards public education and dissemination of health information. In doing so, NIOSH is, as a scientist said, "responding to a widespread public concern about stress." The agency has produced widely circulated research reports, booklets, videos, and training materials about stress at work. The agency's aim is to simply demonstrate the harm of work stress to employers and workers, and, as one research director told me, "We think almost entirely in terms of simply demonstrating the harm of work stress to employers as well as workers, basically showing employers that it's worth it to them to make progress on stress."

While NIOSH disseminates many publications, there is little information collected on how workers, employers, or health providers actually use the informational materials. For example, a twenty-year-old NIOSH publication about violence and stress in the taxi industry is widely used in training programs for taxi drivers. The scientist who wrote the report was only recently made aware of its usage and said, "Nobody at

NIOSH had any clue that this was being used and we had not updated it in many years. I went back and talked to people here and said, you know, you might think of updating this."

As I will describe, a NIOSH scientist's report showing that transportation workers have the highest rates of hypertension, cardiovascular disease, and depression of any occupation initiated a relationship between NIOSH scientists and the transit worker unions in my study. But first I want to account for the challenges the agency faces in attempting to conduct research which shows disease rates by industry or occupation.

State surveillance of worker health

One of the central functions of NIOSH is to provide surveillance of the health effects of work in the U.S population. Surveillance programs track work-related exposures, hazards, illnesses, injuries and death with the aim of providing prevention and control of these harms. Since the founding of NIOSH, the agency has established multiple surveillance programs to track the magnitude of these problems. The NIOSH website states, "These surveillance activities document the nation's progress in reducing the burden of work-related diseases and injuries." While surveillance efforts generally show a decrease in the overall burden of work-related disease, an official report signed by then director of NIOSH, Lawrence Fine (NIOSH 2001), states that "Despite these accomplishments, occupational health surveillance in the U.S. remains fragmented, with substantial gaps."

In Foucault's account of the biopolitical state, knowledge production about population health is a key mechanism of state power. Within the state apparatuses of worker health, *lack of information* defines the attempts to know and regulate workers'

bodies. These institution's identification of lack of knowledge with lack of power reflects their commitments to a biopolitical rationality of governing. As opposed to most European countries, the rates of different diseases by occupation in the United States remain largely unknown. Work information is not well-represented in the main sources of vital statistics in the United States. The collection of data on worker health is fragmented and inadequate to produce comprehensive analyses of chronic disease rates by occupation. U.S. scientists and government officials conducting worker health surveillance find that available health data and reporting systems overlook the vast majority of work-related disease, and consistently undercount work-related injuries and deaths. Scientists report that existing data systems "underestimate the incidence of work-related injuries, illnesses and even fatalities by as much as several hundred percent"(Azaroff et al. 2002).

I interviewed a NIOSH scientist named Alan who works in one of NIOSH's surveillance branches. He explained that while injuries are well-covered by the surveillance systems, in regard to work-related disease Alan says, "We have a big problem. The vast majority of cases of occupational illness are never recognized, and even the few that are recognized are usually not reported. With such poor information available, we need some new kinds of surveillance."

The U.S. government's surveillance of work-related disease is based on three key data sources: surveys by the Bureau of Labor Statistics (BLS), workers' compensation records, and physician reporting systems. Each of these has severe shortcomings for public health surveillance. Surveillance researchers rely most heavily upon the BLS data. In 1987, the Bureau of Labor Statistics' annual survey on occupational injury was retooled to better account for work-related injury after a report critical of their

surveillance capacity. Years later, still only an estimated 5% of work-related illness (as opposed to injuries) are actually recognized and compensated (Abrams 2001). An occupational health specialist reported that the percentage of recognized work-related illness remains the same today, stating, "Most occupational diseases don't get into the workers' comp system. Most occupational diseases are not recognized as work-related. At most, five percent of occupational diseases get recognized as occupational." NIOSH's marginal position within the broader state limits the state scientists' ability to articulate citizens as worker-subjects within state biopolitical calculation and governance.

NIOSH and Transit Worker Stress

In 2011, a NIOSH scientist named John Walker published a report showing that transit workers have the highest rates of hypertension, cardiovascular disease and depression—all stress-related disorders—in comparison to workers in all other industries. Dr. Walker was able to conduct this analysis of disease rate by occupation because he was given rare access to private insurance company data. While there is a severe shortage of work information in public health datasets, private insurance companies often have extensive information about occupation. As the result of this publication, Dr. Walker found himself increasingly close to the transportation industry and the labor unions I worked with in my study.

Dr. Walker is a trained economist who works in a NIOSH surveillance branch located in Cincinnati, Ohio. Throughout his career, Dr. Walker's research was not connected to any particular industry. His research agenda was to, as he said, "conduct broad brush surveillance and calculate all kinds of diseases for all kinds of industries." In his capacity as a surveillance researcher, Dr. Walker was often frustrated by the

shortage work information in available public health data. Nearly ten years ago, Dr. Walker learned that many insurance companies collect health data that is coded by occupation. Dr. Walker learned of this kind of data only incidentally, after reading a reference about a private consulting company that used insurance claims to advise employers on how to manage worker health issues. Dr. Walker said, "I wished somebody in government had that kind of information," and he went about trying to gain access to it.

At first, Dr. Walker was not successful. He found that there is a large private market for "data products" that insurance companies buy and analyze in order to set policy prices. Many of these data products include occupation information and, in Dr. Walker's view, could be used successfully for worker health surveillance. He said, "I saw this as a way of getting access to data that could be used for public health to produce reports that would be in the public domain." However, Dr. Walker found that the companies selling these data were not willing to sell the data for use in the public domain.[55] Dr. Walker said, "What I discovered was that they would sell these data products to anybody who would pay for them with one exception, and that would be the government."

Several years later, a large private insurance company in Pennsylvania agreed to Dr. Walker's request and gave him access to their datasets. Dr. Walker conducted an econometric analysis of insurance claims which included both disease diagnoses and work information for each of the 259,807 people who made claims with the insurance company. He found that bus drivers had by far the highest rates of stress related

55 Their business model is dependent on the proprietary nature of the data and the companies feared that if they sold their data to government officials, company competitors would gain access to the information.

diseases. This included a 16.2% rate of depression diagnoses,[56] 41.5% rate of hypertension, and 14.5% rate of cardiovascular disease.

After publication of the results, officials from the national office of the Transport Workers' Union invited Dr. Walker to present at multiple conferences in San Francisco and New York. Significantly, the union paid for all of Dr. Walker's travel expenses. As part of a recent wave of budget cuts, NIOSH stopped providing financial support for agency scientists to travel to conferences of any kind, including professional and research meetings. Dr. Walker said,

> I wasn't supposed to be able to travel anywhere last year or this year because we have almost no money to travel anymore. In fact, conferences themselves are now off our list of things to do. Nobody is supposed to even think about going to a conference anymore. We are not supposed to be presenting our work. I got to present mine because they [the labor union] paid for me to come out. But I tell you, I felt like I was trying to get away with something.

NIOSH scientists, in addition to be increasingly isolated from policy-making processes, are finding even the ability to disseminate their research undercut as well.

I attended a union-sponsored conference in San Francisco where Dr. Walker presented his findings. Dr. Johnston from the Muni Stress and Hypertension Study was in attendance. During the question and answer session, she said "I've been waiting for this paper since 1978. It was possible that what we saw here [in San Francisco] was an

56 Significantly higher than the depression rate for the U.S. population at large, estimated to be 6.7%..

Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). Archives of General Psychiatry, 2005 Jun;62(6):617-27.

aberration. But now we know it's not." Despite the large international literature, very few studies of disease rate by occupation have been conducted in the United States. Dr. Johnston spent decades traveling around the country talking with transit workers and knew that workers faced similar, stressful conditions all over the country. She believed that the robust results of the Muni study along with the corroboration of studies in other countries demonstrated that transit work is a highly stressful, risky occupation (See Chapter 4). However, in the back of her mind, Dr. Johnston thought it was possible that Muni workers are not representative of transit workers throughout the country.

After the health and safety meeting, Dr. Walker and Dr. Johnston spoke for many hours and held multiple advising meetings about promoting health in the transportation industry. During my fieldwork, I came across many instances of labor organizers developing strong relationships with state scientists and state officials. The formation of worker health policy does not appear to be limited by the ability to be recognized by the state, as many worker organizations are well-recognized by state officials. The limitations of worker health policy, instead, derive from the marginal position of worker health apparatuses within the broader state.

During the meeting's lunch break, I sat with Harvey, the Director of Health and Safety for the Transport Workers Union. In his role as Director, he made the decision to use labor union money to pay for Dr. Walker's travel expenses to San Francisco. Harvey is based at the union's international headquarters in Washington, D.C. but comes from of New York City, where he worked as a bus driver in Brooklyn for 20 years before climbing the union ranks. I asked him what his goal was in inviting Dr. Walker to the conference. He responded, "Well, he shows that we really have a serious health problem." Next, he said, the union will put out a press release about Dr. Walker's paper,

and hopefully media outlets will run a story or two about the problems of stress-related disease among transit workers.

Michael, the Vice President for Safety at TWU, joined us the table and said, "What we really need is to make occupational coding mandatory." Harvey promptly agreed, adding that there should be a national database of insurance claims and hospital admissions, "like they have in Denmark." After Dr. Walker's presentation, there was much discussion about the utility of occupation and industry codes within health information data bases. As one labor representative said, "This makes me think that there should be a policy saying that insurance companies have to collect data on occupation."

By the beginning of 2013, health organizations and labor unions initiated a campaign to mandate the inclusion of occupation information in electronic medical records used by medical providers throughout the country.

Electronic Health Records

Since the passage of the OSH Act, labor organizations have advocated for better research on occupational disease and more training in occupational health specialties. In recent years, these efforts have been unsuccessful. Occupational health as a perspective and a practice continued to decline for the past two decades, with increasingly fewer doctors trained in occupational health as a specialty and proportionality fewer dollars spent on worker health research.[57]

An important strategy in the effort to promote recognition of work-related disease has been attempts to mandate the inclusion of occupation information within state

57 These trends were reported to me in expert interviews.

health databases. As I discussed, surveillance of worker health is severely hindered by data shortages. Health and labor organizations have lobbied state and federal governments to include the collection of occupation information in, for instance, hospital records, standard insurance billing, public health surveys and patient medical records. An epidemiologist I interviewed was part of a multi-year effort to mandate the inclusion of occupation information in all hospital admission records.[58] The effort was initiated by a group of fire service unions and enlisted the support of two U.S. Senators and six Democratic House Representatives. The unions, medical organizations, and politicians lobbied the policy committee, The National Uniform Billing Committee, in charge of determining the content of a standard hospital admission record. After deliberation, the committee decided to deny the request, stating that the collection of occupation information was too much of a burden for providers.

Advocates for the inclusion of occupation information in health information systems have recently found a new foothold in federal legislation promoting the use of electronic health records (EHR) by health care providers and hospitals. The 2009 legislation provisions at least $27 billion of federal payments to health care providers that use EHRs. The stipulation is that providers meet a set of requirements for what is called the *meaningful use* of the EHRs. What will count as meaningful use is still in the process of formation and will be settled by 2016. Labor and medical organizations have been successful in getting type of occupation included as a basic demographic category in the current recommended policy. Two other domains under similar consideration are disability status and sexual orientation.

58 In Denmark, on the basis of hospital admission records, which so contain occupation information, Copenhagen's transit workers were shown to have the highest rate of cardiovascular disease of any category of state worker. This prompted Parliamentary intervention and a large research and intervention study into the city's transit system.

The already settled-upon demographic categories for meaningful use of EHRs are sex, race/ethnicity, age, and preferred language. The policy demands that providers, in order to receive the federal subsidies, collect the required domains at least 80% of the time. Scientists working on the policy told me that the compliance for the collection of race, sex and age is already so high, that the Department of Health and Human Services (the administering agency) will likely retire these as compliance categories by 2016, saving the agency the cost of preparing audits on these practices. An example of another new compliance category is the requirement that providers using the EHR system electronically transmit prescriptions at least 50% of the time.

A major problem for worker health surveillance is the lack of physician knowledge about work-related causes of disease. Most physicians in the United States are not trained to recognize the work-related causes of many illnesses. The Institute of Medicine report on inclusion of occupation information in medical records states that "A key factor that contributes to underreporting of occupational morbidity, particularly illnesses, is that reporting relies on the health care professional's recognition of a health condition as work related" (2011:9). Patients receive diagnoses and treatments for problems like asthma, chronic back pain, hypertension, depression and many other disorders without recognition of the work-related cause of the illness. One NISOH scientist told me that a record low of only 15% of doctors ask their patients, "What do you do?" Another scientist estimated the number to be even lower, saying, "Ninety-nine percent of the time we are not collecting data about what the patient does. We are missing the chance to ask what patients do and what they are exposed to."

Scientists and policy-makers speculate that the effects of inclusion of occupation in EHRs would be far-reaching. Advocates believe that getting occupation information into

electronic health records would not only enable scientists to characterize the role of work in population health, but more importantly would provide clinicians with guidance for diagnosing work-relatedness and with information for identifying work exposures. A senior occupational health physician said, "If we collect occupation in EHRs we will probably have an entirely different picture of role of occupation in disease for people in the United States than we do now. You'd be populating these databases with millions, tens and hundreds of millions of visits with all this information. We'd learn a lot more about the role of work in disease in the United States than we have ever known." Another physician I interviewed referred to the inclusion of occupation variables in EHRs as the "magic wand solution to the problems of missing work-related illness and underreporting in our health information systems."

The physicians and scientists who headed the effort to get occupation as a standard demographic variable in EHR are quite confident that their efforts were successful and that, by 2016, doctors all over the country will be asking their patients, "What do you do?" One of the scientists central to the campaign, a high-level public health official in California, told me that he believes occupation will not only be included but will defined as a mandated category, and that providers will be subjected to penalties if they do not collect occupation information at least 80% of the time (unlike sexual orientation which will likely be included as a new category but has already been marked as optional). A scientist in charge of occupational health surveillance for the State of Massachusetts, who also took part in the campaign, told me that she was actually quite surprised that the proposal for inclusion of occupation was successful. She said, "I truly do not know what will happen next, and the idea of such a success was unthinkable even just a few years ago." A NIOSH official I interviewed was far less optimistic, saying "Having

worked in this field for more than 30 years, I just don't think it'll make it to implementation."

During the DHHS's public comment phase of the policy regarding the meaningful use of EHRs, letters and comments advocating the inclusion of occupation as a demographic variable far outnumbered comments for any other aspect of electronic health records. This was likely a result of the role of labor unions in the organizing effort. The transit unions in my study disseminated a call for public comments through their networks of health and safety experts. Scientists from the Muni Health and Safety Study submitted official public comments to DHHS. In a letter addressed to the government, entitled "Regarding Industry and Occupation as Demographic Variables For EHR Certification Criteria," the Muni scientists wrote:

> Work can be an important predictor of health and disability, and health status affects work capability. Despite this, individual health data are typically stored with no link to work experience. Existing health data bases on general population do not yet connect health and employment. Worker representatives and employers struggle to understand the link between conditions of work, health status and disease risks. Even data that includes industry or occupation, such as the National Health Interview Survey, do not provide enough detail about work history nor diagnosis, and are not useful for clinicians. To provide adequate diagnosis and care, physicians can and should enquire about work status. To characterize the impact of work, especially on multifactorial health problems, and provide support for treatment and prevention, researchers need to be able to access both streams [both work and health information].

In the perspective of the transit worker union representatives in my study, if U.S. health surveillance systems regularly included work information, transit workers would be shown to suffer an excessive burden of disease—transit work as the most stressful occupation (Chapter 4) would become apparent to policy-makers. While there have been some studies in the U.S. showing high disease rates among transit workers, due to the lack of national worker health information systems, these studies cannot be put in the context of nationally-tracked disease rates.

Conclusion: Work categories and social class

In the United States, the Office of Management and Budget (OMB) currently defines 840 official occupation categories. The current recommendation for the EHR policy is to use these OMB occupation categories in patients' medical charts.[59] The OMB's classifications of race and ethnicity have been the subject of extensive scholarship examining how the categories pervade biomedical research (Epstein 2007), and how state definitions of race shape identities and public discourse about race (Omi 1997). However, critical social science has rarely, if at all, considered the state's definition and use of work categories.

A significant aspect of the OMB's occupation categories is their relative lack of utility for hierarchical or class-based analyses. Even with the large number of occupation categories, leading health disparities researchers argue that U.S. occupation categories cannot be meaningfully used as measures of socioeconomic status or social class (Braveman 2005). While the categories may be useful for state economic analyses, they

59 One of the key technical challenges of including occupation in EHRs is designing a system that will allow physicians to input the patient's occupation (from the long list) in a short time period. NIOSH scientists developed a computer program that auto-codes narrative next into the standard occupation categories. They plan to have work history collected in a narrative field and then auto-coded using the software.
Along with the North American Industry Classification System, which defines all workers into 23 broad industries.

do not appear to be intended to differentiate forms of work based on status or hierarchy. Workers with diverse skills and power are often categorized within the same occupation codes (*ibid.*). For example, head chefs, waitresses and dishwashers are all categorized under "Food Preparation," and CEOs, town clerks and tenant farmers as "Management." Some health researchers have tried making crude distinction between manual and non-manual work and found strong associations with health outcomes (Barbeau et al. 2004), but more nuanced analyses are not currently possible.

In most Western European countries, the state collects and reports health statistics by social class using occupation categories as the primary means of defining social class. Social class difference—operationalized through occupation categories—is the standard framework for analyzing stratification in the population. In these analyses, occupations are sorted into distinct social classes based on differences in power, prestige, and skill. Most European countries, in their state health analyses, define five or more distinct social classes. The U.K., for example, has for over 100 years collected health data stratified by five distinct social classes, and more recently divided them into seven official classes.

By contrast, in American health surveillance, populations are far less often differentiated by social class. Instead analyses are more likely to define stratified populations by race or ethnic categories or by socioeconomic status (SES). SES is generally operationalized by measures of education and income. Differences in health outcomes associated with low SES are the object of extensive study and critique within American public health. Socioeconomic *disparities* are defined as unjust differences in health outcomes created by variations in SES (Braveman 2006, Krieger 2011). Yet SES differs from social class in important ways.

Definitions of SES and disparities locate individuals within a continuous gradient of income or education. In doing so, they diverge from social class concepts which are often intended to define cohesive, politically interested social groupings. Marxist theories of political economy define social class on the basis of position within a field of exploitative employment relations (Wright 1997).[60] Social class discourse and consciousness arose in the context of work-based organizing. The specificities of occupation were at the center of the emergence of class categories, with groups of workers connected by occupation—textile workers, bricklayers, etc.—building associations and developing collective claims on capital and the state.

Throughout my research with health scientists, explicit discussions of class were rare, reflecting what anthropologist Sherry Ortner (2006) refers to as the "relative absence of class discourse in American culture" (*ibid.*:26). When considering that state worker health agencies and significant strains of occupational medicine itself emerged from the labor movement, the absence of class discourse is quite conspicuous. For example, one researcher I interviewed said that her "life's work" was devoted to the campaign for the inclusion of occupation categories in medical information systems. As an advocate, she is highly committed and has an extensive knowledge of the political field in which the battle for the recognition of work-related diseases is fought. When I asked her about the role of occupation information in analyses of disparities or for social class analysis, she responded by saying, "I'm not really conversant on the use of occupation for a socioeconomic proxy variable."

60 Class analysis begins with two main classes—workers and owners—but some theorists have tried to define a distinctive middle class. In either case, social class functions as a subject position and identity providing a basis for collective action.

Even in the context of growing economic disparities, class as a social grouping and class consciousness have become, as Comaroff and Comaroff (2001) write, an increasingly "less plausible basis for self-recognition and action" (301). Ortner (2006) argues that, in the American context, the decreased relevance of social class results from the deeply individualistic nature of American culture, which cannot easily situate individualistic motives within a notion of collective interest demanded by the concept of social class. Transformations of work—outsourcing and the emergence of the service economy—likely play a significant role in undermining the basis of cohesive social classes.[61]

In sum, we can understand type of work—or occupation—as a weakly, or partially, codified category of state health management when compared to the more thoroughly codified categories of race, gender, and age. Worker health specialists in my study often emphasized, as one scientist said, "Occupation was the original topic of public health. Early public health was founded on occupational disease. Now there is virtually no occupation in public health." The fragmented institutionalization of occupation categories within the state apparatuses of health, surveillance, and policy-making reflects the status of work-based activism and institutions in the United States.

61 Comaroff and Comaroff (2001) argue that while the proletariat may be becoming an increasingly ghostly presence, a global capitalist class has taken on a more tangible form.

Chapter 7: Conclusion: Work Stress in the Field of Political Action

This brief conclusion reflects on the connection between stress concepts and the potential for political and organizational change. First, I outline anthropological critiques of stress as a depoliticizing discourse, and examine how the multiplicity of stress discourses I observed in my fieldwork serves as a challenge to these critiques. Second, I discuss the "demand-control" model of stress, which is the most widely-used model for studying stress in the workplace. I consider, in particular, how this model has been used to initiate organizational change within the Muni transit system.

Stress and the Environment

In both popular and scientific discourses, stress refers to a relationship between the body and its environments. Modern stress sciences emerged in the mid-20th century in the context of research on the physiology of self-regulating bodies, a process known as homeostasis (Harrington 2008, Cooper and Dewe 2008). Hans Selye (1956), the physiologist often credited as the founder of modern stress sciences, initially labeled the pathogenic relationship between organism and environment as "general adaptation syndrome," and later, as "stress." The idea that disease can result from an organism's failure to properly adapt its homeostatic processes to environmental challenges spread quickly through both scientific and popular spheres.

Today there is a vast diversity in how scientists define and deploy stress concepts. In contemporary stress sciences, definitions of homeostasis have given way to more open and flexible theories of "allostasis," a theory of constantly shifting homeostatic baselines within organisms (McEwen 1998). The types of circumstances and events studied by

stress scientists have continued to proliferate (Monroe 2008). However, the broad understanding of stress as environmental challenges to homeostatic response mechanisms remains remarkably intact. The question of how bodies maintain their internal milieux within shifting environments continues to be the primary object of knowledge for stress sciences.

Historians and anthropologists have interpreted stress discourse's focus on individual, bodily adaptation as obscuring structural causes of social and political conflicts. Historians of science have argued that the development of stress sciences—with their emphasis on the biology of homeostasis—were a symto of broader concerns during the 20th century about sustaining social, political, and personal *stability* (Jackson 2013). Conceptions of physiological regulation and adaptation to the environment were configured by anxieties about economic depression, social instability, and war.

This historical explanation is broadly consistent with the dominant interpretation of stress concepts in the field of medical anthropology. Many anthropologists have understood stress discourses—in both scientific and popular domains—as working to depoliticize and individualize structural inequalities and social suffering (Pollock 1988, Shoenberg et al. 2005, Pohlman and Becker 2006, Adelson 2008). In this perspective, stress discourse frames structurally violent or unjust conditions as a naturalized "environment," and orients attention primarily to the individual's ability to manage his or her stress response to the conditions.

Allan Young's (1980) classic critique of stress discourse serves as a foundational framework for many anthropological interpretations of stress. Young argues that stress discourse performs a sleight-of-hand, where it purports to use sociological information (by identifying stressors in the social environment) to describe the factors affecting a

person's health. However, the environmental factors described by stress discourse—"life events," "psychosocial supports," "change"—are "diffuse and subjective" and separated from the "real conditions of existence" (133). In Young's view, the real conditions of existence include the destabilizing forces of class conflict and social discord. Stress discourse, as Young writes, displaces "the human subject from his place in society to a desocialised and amorphous environment" (*ibid.*).

This interpretation and critique of stress discourse does not neatly capture the huge diversity of stress discourse and concepts I observed among the participants of this dissertation study. I suggest, instead, that stress discourses offer a contested space for continually defining and negotiating the meaning of one's embodiment of the social world. This is evidenced by the diverse ways that workers, scientists, legal and policy specialists, and health providers defined, interpreted, and deployed stress.

I did in fact observe many instances of stress discourses working to individualize and depoliticize structural harms. Transit drivers often understood their hypertension, obesity, and other chronic disorders as a failure of their own management of stress. This finding contrasts with Davenport's (2004) study of Muni drivers, where she reported that drivers did not understand their chronic disease in terms stress, and instead referred to individual, biological and familial causes. Alternatively, I found that drivers frequently regarded stress as a cause of poor health. But there was profound fluidity in terms of where individual workers' placed responsibility for stress and its bodily consequences. Many workers blamed external factors for unmanageable stress, such as transit system policies, assaults from the public, racism, as well as low educational level and lack of life chances. Other workers primarily blamed themselves for not properly managing the effects of stress, for example through exercise and healthy diet.

Several chapters of this dissertation demonstrated the highly contested processes through which attributions of blame and responsibility move from structures to individuals, and vice versa. Chapter 2 showed that impossible-to-meet transit schedules are produced as structural elements of neoliberal governance. However, public and political discourses define the system's time problems—its lateness and slowness—as attributes of unproductive and lazy workers. This redefinition of structural problems as individual failures is central to the neoliberal dismantling of public sector labor unions and the restructuring of transit system itself. Furthermore, Chapter 3 detailed how, despite the proliferation of evidence that the conditions of transit work are a cause of poor health, racializing representations in the health sciences situate the causes transit workers' chronic disorders in African American genetics and cultural behaviors. Similarly, Chapter 5 argued that physicians in workers' compensation clinics recognized stress as a significant feature of the transit work environment, yet mobilized a clinical gaze that attributed chronic disease primarily to individual behaviors.

In contrast to these individualizing discourses, as I discussed in Chapter 4, transit labor organizations and scientists mobilized stress concepts to represent transit drivers as part of a global class of workers. In the discourse of transnational labor, a hazardous exposure to stress is a universal feature of transportation work. As such, transit worker stress serves as a basis for transnational solidarity organizing among workers. The "body mapping" exercise I discussed in Chapter 4 is an example where organizers use stress concepts to construct a shared, collective experience of suffering and risk, which is then deployed as part of transnational labor actions. Another use of stress discourse to counter individualizing trends was apparent in Chapter 6, where I provided an analysis the state's biopolitical management of work-related disease. I showed that labor

organizations and health specialists lobbied for the inclusion of occupation information in medical records and vital statistics as a tactic of making the health impacts of work legible. These efforts were meant to counter the state's progressive withdrawal from addressing the population as workers. When health impacts of work become legible, it opens a possibility for a structural analysis of chronic disease, as there are different rates of chronic disease for people exposed to different forms of work. Access to health information that includes occupation categories enabled transit workers to claim that the structure of their work exposes them to uniquely hazardous forms of stress.

Stress and "Control"

In this last section, I offer a brief discussion of the *job strain* model of stress, which is the most widely-used scientific framework for studying stress at work. This model identifies lack of control over working conditions as the fundamental cause of pathogenic forms stress (Karasek 1979, Karasek and Theorell 1992, Kivimäki et al. 2012). Also known as the demand-control model,[62] this model contends that heavy demands are not in themselves dangerous to health. Work and life demands are often beneficial, serving as key source of vitality and dynamism, and leading to what some scientists call "good stress" (Le Fevre et al. 2003). In this framework, a low degree of control over how to meet the demands of work and life triggers the body into a dangerous form of stress. *Low control* sets off a cascade of harmful physiological processes including the chronic release of stress hormones and inflammation. Scientists have linked low control conditions in a wide range of industries including

62 And later expanded to the control-demand-support model

transportation, nursing, garment manufacturing, and food service to chronic disorders such as hypertension, cardiovascular disease, musculoskeletal disorders, obesity, diabetes and depression.

During my research, I tracked the historically specific, socio-political concerns that gave rise to conceptualizations of "demand" and "control" as the primary attributes of peoples' relationship to their environments in this model.[63] The demand-control model was developed in Sweden during the late 1970s in the context of the work reform movement, which aimed to democratize the workplace and give workers active input into the design of work processes. In the Scandinavian context, through the mobilization of control concepts, stress researchers had direct impact on many significant legislations that institutionalized labor's role in directing business activities.[64]

Muni stress scientists and transit union officials in San Francisco told me that "control" became a key orienting concept for both scientific research and labor organizing. During the course of the Muni study, the job strain (or demand-control) model became the premier, and most thoroughly validated, model for studying work stress throughout Europe and the United States. Early on in the Muni study, in 1980, both scientists and transit labor officials from San Francisco began traveling regularly to Sweden and building relationships with European scientists. Leading European stress scientists also visited San Francisco to consult on the Muni study.

A senior scientist on the Muni project said, through these collaborations, it became clear to both the researchers and the workers that "The overarching question was, how can we maximize control?" Summing up the stress research on Muni drivers, another

63 This analysis is based on interviews with senior stress scientists in the United States, Sweden, and Denmark. I do not include the full analysis of this data in this dissertation

64 These were known as "co-determination" legislations which institutionalized union negotiating power over the organization of work.

one of the lead scientists told me, “It comes down to control, to control of destiny, with the ability to influence the events that impinge on their life. And the bus drivers ain’t got none of that. They have a schedule which cannot be met, ever, and they get points off when they are late.”

The Muni study evolved into an action research project involving close collaboration between scientists and drivers. Through the research collaboration, many union members became well-versed in the latest stress research and they developed expertise in deploying the demand-control concept of stress. One of the researchers said, about the drivers collaborating with the study, “After the first couple years of the study, they were very sophisticated about control, probably far more than most researchers.” The workers’ sophisticated use of the control concept allowed for nuanced analyses of the stressors in the workplace—e.g. blocked view of traffic, malfunctioning microphone, narrow street, passenger playing radio, passenger smoking, and hundreds of others.

Control also became an orienting concept for the labor union’s political strategies. Louis Reyes, the former president of the transit workers’ labor union, told me in an interview, “Once the research got started, it became about control. Increasing control became the way that we thought about everything.” Louis negotiated with the city to establish a governance structure at Muni which institutionalized worker decision-making within the organization. The structure became known as the Joint Labor Management Board (JLMB). The JLMB created mechanisms for drivers to bring forward and implement their own ideas about how to improve their working environment and the organization of the transit system as a whole. The scientific demonstrations that drivers were suffering excess rates of chronic disease enabled Louis to negotiate this new relationship between union and management. The union

convinced the management that organizational changes were necessary to address the health problems. The structure of the new JLMB had many parallels with the Scandinavian model of co-determination of the workplace. Louis said, "That was the structure that we put together and wrote in the contract to deal with this control."

The union-initiated interventions to increase control in the Muni system quickly outpaced the researchers' ability to study the interventions. As Louis said, "We couldn't wait for the results to come in to start doing things. So we made changes as we went along." The interventions were informed by the concept of control introduced by the stress researchers, and were made possible through the organizational structure of the JLMB. A multitude of changes were made during the course of the stress study, including introducing new rules around bathroom breaks, creating more comfortable break rooms, changing the structure of "line supervision" on the street, improvements in traffic enforcement, and a campaign to improve public relations and build community relations. These changes were never linked to health indicators, as they were implemented before researchers were able to set up an intervention study. When the stress study ended in the early 2000s, the JLMB was dismantled and many of the organizational changes were reversed. As Louis said, "Now it's back to the way Muni was even before we started with the study." According to scientists and union officials I spoke with, the working conditions at Muni are worse now than ever before.

During my fieldwork, a significant controversy arose over the effect of work stress on health, which split senior researchers on either side of heated debate. At the center of the debate was the demand-control model and its association with heart disease. In October of 2012, a consortium of mostly European scientists, many of whom were central to the development of work stress sciences during the past three decades,

published meta-analysis of demand-control studies in *The Lancet* (Kivimäki et al. 2012). The meta-analysis looked at the relationship between work stress (defined as low control, high demand conditions) and cardiovascular disease in nearly 200,000 European workers from Sweden, Finland, Denmark, Belgium, Netherlands, and the U.K. The results showed that work stress has what the authors regarded as a "small" association with cardiovascular disease. They reported that only 3.4% of cardiovascular disease in the working populations can be attributed to stress. The authors recommended that public health efforts be redirected towards standard risk factors, such as smoking and physical inactivity. In the summer of 2013, the consortium of European scientists publish a similar study in *PLOS ONE* examining stress (again measured as low control, high demand) and blood pressure, which concluded that "Our findings provide strong evidence against the common belief that job strain increases resting blood pressure" (Nyberg et al. 2013:5)

By late summer and fall of 2013, a group of American scientists published a set of highly critical responses in *The Lancet, The American Journal of Epidemiology,* and *PLOS ONE* (Choi et al. 2013a, Choi et al. 2013b, Landsbergis et al. 2013). In a letter to the consortium, which was subsequently circulated through email lists, the American authors wrote, "We think the interpretations made and the sweeping conclusions drawn in the publications are deeply concerning." The critiques foregrounded a wide range of methodological and interpretive issues with the studies. One of their central contentions was that the study sample was heavily weighted towards Northern Europeans in white-collar jobs. In the view of the American critics, the association between stress and heart disease is stronger for those with lower socioeconomic status. The limited "occupational variance" of the sample, and its heavy bias towards white-collar workers, led to an

under-estimation of the true association between stress and heart disease in the population. They pointed out that "Workers in the most stressful jobs (industrial, sweatshop, and temporary workers and undocumented immigrants) were much less likely to be included" (Landsbergis et al. 2013:1).

What kinds of cultural, social, and economic forces enabled the consortium to use a sample of largely white-collar workers to claim that work stress should no longer be a public health priority? This recent, ongoing debate invokes the problematic that I discussed in Chapter 3, and other sections of the dissertation, about the political status of the workers that stress researchers study. White-collar work has long been associated with stress and heart disease in both scientific and popular imaginaries, even while evidence has continually accumulated which shows that lower status forms of work are associated with more stress-related disease. I argued that this contradiction results from social and political valuations of white collar workers—and their supposed qualities of ambition, responsibility, and overwork—along with a concomitant devaluation of lower status workers, who are assumed to lack these qualities. Through these representations, the political status of the worker under consideration shapes scientific attempts to demonstrate the bodily harms of work.

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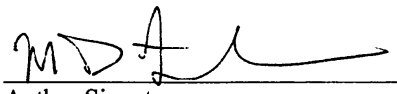

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