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Scrap: The Social Life of Recyclable Metals in the United States & India

DISSERTATION

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by

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ABSTRACT OF THE DISSERTATION

Scrap: The Social Life of Recyclable Metal in the United States & India

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Professor William M. Maurer, Chair

In this ethnography, based upon multi-sited fieldwork using participant observation, I tracked the movement and transformation of waste from discarded objects in Chicago's alleyways to fully-fledged, shiny, new commodities rolling off the lines of Jindal Steel Work's integrated steel facility in South India. I examine scrap metal recycling as a set or relations within relations that enables this commodity circuit to stretch from Chicago through the Port of Los Angeles to mini and integrated steel plants in the South Indian countryside.

This ethnography is organized around the elements that the global scrap metal economy must wrestle with, manipulate, use, and save: earth, air, water and fire. In the alleyways and scrap yards of Chicago, I examine the above ground mining of scrappers and their earth saving labor. At the Port of Los Angeles, I examine the making of the Port into a green, environmental subject through law and environmental monitoring. In multiple locations in India, I attend to the domestication of fire and its application in metal production. In the final chapter, I examine the

shipbreaking industry in India and bring into question the environmental and labor repercussions of large-scale, for-profit scrap recycling.

I envision the empirical data generated from this research project fitting into conversations—in academia as well as in more public conversations—about the pressing global concern of how we produce commodities, expend their use values and ultimately strive, or fail, to efficaciously mediate post-consumptive waste. There is a certain timeliness to this work as sustainability, environmental consciousness, questions of waste disposal, and public health are more and more pressing issues in policy design and practical municipal matters of waste collection and disposal.

INTRODUCTION

Scrap metal is not commonly viewed by the general population as a commodity, and is often neglected as a recyclable during curbside collection,[1] yet it operates as a formal object of circulation that is tied to the economic livelihood of vast, underrepresented populations who span the globe. More visible and accepted commodities disappear from the public imaginary of what count as valuable objects once they reach the dumpster.[2] However, the dumpster in fact serves as a starting point for a new path to valuation. In this ethnography, I examine how a variegated host of brokers in a commodity circuit of scrap metal recyclables shifts the value of discarded metals and transforms these new commodities into objects that index meaningful labor, environmental good and sound sustainability measures. At each stage, what was once devalued and thrown away is given new value – economically, socially and environmentally – and is reformed, through the process of for-profit recycling, to serve particular goals. I ask, how are the actors in this commodity circuit connected through their mediation and transformation of the value of scrap metal? What then are the mechanics of their connections, and how are these mechanics made to matter for the people who handle this commodity, for the environment, and for the economy?

Using the anthropological field method of participant observation, in a multi-sited (Marcus, 1995) research paradigm, I followed the commodity chain travelled by scrap metal from dumpster to factory; from Chicago's alleyways to the Port of Los Angeles; from the Port of Los

[1] U.S. EPA, 2009, "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures of 2009," http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2009-fs.pdf.
[2] Mary Douglass, *Purity and Dange*. (New York: Routledge Press, 2002).

Angeles to Mumbai, India; to the mini-steel plants in South India. At each stage, I worked alongside the people who structure their economic livelihood around this commodity, in order to document the tangible (if invisible) value of scrap, economically, with regard to the environmentally sound activity of recycling, and for the gendered, racially marked and ethnic populations who divert these newly formed commodities from the waste stream. This study explores how informal circuits and their connections to formal scrap metal economies offer the possibility for more carbon neutral practices than the alternative of strip mining for virgin ores. In this commodity circuit—or what anthropologists and science and technology studies scholars refer to as an "actor network"[3]—economic profit is the root cause of action, yet this action contributes to the public good and global environment by reducing strain on natural resource extraction and landfill burden, while also helping to reduce pollution to water and the air.[4] Despite the public good in terms of environmental impact, the social impact of the global scrap trade is more complicated. Pinioned between creating environmental good and sourcing low cost labor, the global scrap trade creates inequalities by sustaining labor hierarchies while raising barriers to forms of social and political solidarity despite the common linkages of the dispersed workers involved in scrap commodity chains.

Scrap is a metal and it abounds. Scrap is the broken refrigerator in your garage waiting to be hauled away. Scrap is the water heater in your basement that gave out. It is also the broken

[3] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory*, (Oxford: Oxford University Press, 2005).

[4] The EPA estimates that the average benefit of recycling steel, over mining for virgin ores, saves between 60-74 percent of the energy used to produce these commodities from raw materials; further the EPA suggests that per ton of recycled steel the energy equivalent of 3.6 barrels of oil and 1.49 tons of iron ore are saved over the production of new steel from virgin ores. In the scope of the commodity circuit that I trace, this is significant given that almost 1 billion tons of steel recyclables were shipped to India in the last reported year of 2005. U.S. EPA, 2011, "Environmental Factoids," "Wastes, Partnership, Waste Wise Program." http://www.epa.gov/osw/partnerships/wastewise/wrr/factoid.htm.

alternator from you car that the mechanic chunked into a pile in the corner of the shop. Aluminum scrap is found in the beer cans in your recycling bin. At the Ford Motor Factory in Dearborn, Michigan, scrap is found in the cuttings of the quarter panels of your new Ford F-150 pick up. Scrap is the old electrical wiring and copper pipe that were replaced during your recent kitchen renovation.

Scrap is valued by scrappers—the men, women and children around the globe who collect discarded, trashed and neglected objects that are composed of metal. To these individuals scrap has a value, and this value lies in the exchangeability of metal, a currency of sorts, that is valued as a market-driven commodity and for the scrapper translated into money. Scrappers in Chicago, as metal brokers, are a node of value transformation that is post-consumptive and the beginning of a commodity circuit with global reach. In saying brokers serve as a node of value transformation, I mean that scrappers are subjects who use rational thought and action to collect and exchange metallic objects which seemingly appear to be waste to other subjects. When a scrapper secures a metallic object with the intention of selling it to a scrap yard, the metallic object is no longer perceived as waste. Rather, through the scrapper's purposive action, the scrap is in the initial phase of its transformation into a commodity form. But the scrap does not become a commodity—something exchangeable—until it rests on a scrap yard's scales. In other words, measurement is crucial to its conversion into a commodity. Before it is measured on a particular scale, it is still waste.

That measurement must take place at a particular time, in a particular location, and with particular personnel. Only after the scrap is weighed by a scrap yard employee, and the scrapper

is paid cash for the exchange, does the metal become a commodity. Chicago scrap yard owners purchase scrap from the scrapper based upon monthly prices set by the Institute of Scrap Recycling Industries, Inc. (ISRI), the governing body of domestic and international subjects active in the scrap metal economy.[5] The ISRI compiles an aggregate of data from the London Metal Market and extrapolates from these figures the prices that they hand down to the scrap yards. The commodity circuit that the metallic object travels begins the moment the scrapper possesses the metallic object and ultimately ends—either domestically or internationally—when that object is processed into a 'new' commodity. In his influential contribution towards an anthropology of 'things,' Arjun Appadurai calls this circulation of the 'thing' its "social life" (1986: 13).

Scrap metal, at this point, has global reach. Metal brokers purchase scrap metal from the owners and brokers at scrap yards throughout the United States. Developing countries, and countries with robust steel industries, purchase scrap metal from brokers around the world and have the scrap shipped—most often from New York, Houston, and Los Angeles—in twenty foot equivalent units (TEUs), or more simply the larger metal shipping containers that we see on the beds of tractor trailers. The cost of transport on trucks and trains and the movement of scrap metal commodities by sea on ships is the most crucial cost for brokers and buyers—it is where huge profits can be attained and also the site of complete loss if shipping costs rise due to tariffs and geo-political warring.

[5] By the ISRI's calculations, in the year 2007 when this project began, the United States' scrap metal economy is a $71 billion dollar a year industry with over 50,000 employees working to have 'recycled' 150 million tons of scrap. In the same year, the exportation of scrap metal composed a $21.7 billion dollar a year industry that exported 38 million tons of scrap. (http://www.isri.org/AM/Template.cfm?Section=Industry_Facts&Template=/CM/ContentDisplay.cfm&ContentID=16096)

I spent a summer working as an intern at the Port of Los Angeles where I was able to observe the complexity of the daily logistics in the shipping industry as well as to document the progressive environmental stewardship—with clean energy, trucks and bunker fuel reductions—that had been grafted onto the Port's operations through lawsuits and policy enacted by the state of California in the early to mid 2000's. Ports serve as entranceways and exits to and from countries, respectively. They are private and heavily militarized. They serve as the physical sites where nation states send their commodities to achieve market value. The transformation of southern California's desert—from Oxnard to San Diego—into a megalopolis of people and their businesses, coupled with the West Coast's proximity to Eastern markets, has created great wealth for California and provided nearly 2 million jobs related to the movement of these commodities.

The vast amount of desert land 50 miles east of Los Angeles provides another advantage to shipping commodities—some of the variegated commodities that over time will themselves become scrap—from the East to California. Logistics firms—the brokers who arrange the delivery of commodities (usually by train and truck)—have built vast storage facilities to the East of Los Angeles. Similar storage facilities have also been appropriated by the heavy-hitting retailers in the United States' consumer retail industry such as Target and Nordstrom. Nearly half of the commodities that come into the Port of Los Angeles are consumed by Californians. The second half of these goods are shipped to Chicago. I examine how the Port of Los Angeles—coupled with its sister port, The Port of Long Beach—serve as a port complex that stands as the 5th busiest seaport due to its special position, geographically speaking, and the *hinterland* around Los Angeles that serves as a "dry port" where transshipment to other markets is enabled.

Alongside this analysis, I also attend to the movement of commoditized *waste* in the form of scrap metals, papers, and animal byproducts as the Port of Los Angeles' top exports. It is often joked about at the Port that the number one export is air. The joke is rooted in the reality that usually 40 per cent of TEUs leave the port empty as "exports." At the same time that air is joked about in empty TEU exports, air and water quality are stark realities and sites of constant negotiation as the Port complex, a broker of commodities and industrial real estate firm, must also attend to the brokerage and stewardship over air and water quality to preserve the stability of the natural environment and to protect the human health of those dwelling in the surrounding communities.

For nearly a year, I also examined the recycling industry and waste politics in India. In India, I observed the daily machinations and movements of waste and scrap with a variegated group of collaborators and brokers who occupied variegated structural positions in the trade. I interviewed metal brokers and executives, kabadiwalas (junk dealers), NGOs that fight to reduce waste and raise awareness in Mumbai, slum tourism outfits in Dharavi where Western tourists are guided through the largest recycling slum in the world, and toured the facilities and interviewed directors at Jindal Steel Works (JSW) in addition to touring iron ore mines and the facilities of MTC scattered throughout the subcontinent where scrap is purchased, held and traded. India is the largest democracy in the world. Developing nations like India, with an emerging middle class, are not yet capable of producing enough scrap waste to rely solely on domestic inputs. With an established and thriving middle class nations *transition* from being scrap consumers to scrap producers.

The Indian steel industries' reliance on foreign scrap imports also centers directly upon two other cultural practices that thwart an abundance of end of life commodities composed of metal. A space exists in the Indian cultural milieu where items with redeemable use value are passed on or sold to another user. Kabadiwalas (Hindi for junk men) purchase end of life scrap in the forms of metal, newspapers and bottles; however, they also purchase fully functional (often dated) mobiles (cell phones), radios and other electronics. A kabadiwala usually embodies the general knowledge to make small repairs on appliances and radios, and if he can't he usually has a network of people who can make these minor repairs. The second reason why India produces smaller quantities of obsolete scrap is because of the concept of jugaad. Jugaad means many things in Hindi, but it translates to the English equivalent of hack and can include, in many cases that I saw, the use of "unuseful" objects to compose a fully functioning vehicle, bicycle repair, or other innovative apparatus. Kabadiwalas then stand in as a certain type of mediator who purchases useful items as well objects that will immediately be sold to the next level kabadiwala.

At all stages of the collection, processing, shipment, and manipulation of scrap metals, one might posit that each human agent involved is acting in a brokering role during stewardship of the metals. Along this circuit, the brokering agents maintain vastly different roles and structural positions in the movement of these fledgling and established commodities. At the lower rungs, scrappers in the United States and ragpickers in India can be said to initiate the flow of metals at what I refer to as the street level. In the next rung of brokering, scrap yards and kabadiwalas are those with greater access to capital and therefore maintain the secondary rungs in this commodity circuit. Above the scrap yard owner and kabaidiwala could be a regional scrap yard or secondary kabadiwala. The next level of brokerage in the US would be a metal company of large scale such

as SA Recycling on the West Coast and SIMS Metal Management in Chicago and the East Coast. These large-scale metal brokers then rely on international purchases from steel plants who employ their own brokers to establish shipments through shipping carriers—Evergreen, Maersk, Hapag-Lloyd. The shipping carriers, as brokers, then must coordinate with the brokers at the various ports to arrange potential transshipments—the movement of the TEU from one ship to the ground at a different port and then reloading and shipment to the port of call. The TEUs are then loaded onto tractortrailers or trains and moved to the steel plants. Therefore, the logistics involved in recycling an object, such as your old washing machine, require numerous brokers who mediate and handle this object you have long forgotten.

In this ethnography, I theorize recycling, therefore, as a cycle of cycles within a larger cycle that relies heavily upon a number of different brokers in a number of diverse places. I rely on various theorists' concepts of first nature and second nature and use them to theorize a category of third nature and its relation to the scrap trade. First nature refers to the god-given, pristine natural world, and second nature, to the material and built environment, including culture, humans have constructed on top of and out of first nature (Cicero 1972, Cronon 1991, Hegel 1967, Ingold 2000, Marx 1967, Taussig 1993). While useful analytically, when applied to recycling, first and second nature are not just a matter of the simple unidirectional transformation of the one into the other, or the harnessing of the former by the latter. Rather, the byproducts of second nature—wastes and recyclables—are a form of what I refer to as third nature, or the mixing of the elements of first nature in the spent objects that at one point had use values in second nature. Recycling is not a smooth and continuous process. Rather, it is subject to the performance of smaller cycles, or subcycles—by a range of brokers in diverse places who mediate and transform

this third nature—within the larger umbrella category of recycling. All of these diverse brokers operate within the larger cycle of recycling and make the process appear to be fluid and seamless. However, recycling is the end point of a long and complex process that attempts to bring objects produced out of the elements in first nature, and consumed in second nature, back to the closest form possible from which they were extracted from first nature without having to mine virgin ores. Thus, recycling, and this particular commodity circuit of mediators of this third nature, poses the possibility of a more sustainable answer to waste handling.

In the chapters presented in this dissertation, I attend to the various ways that brokers involved in the global trade of scrap metal work as a human-object assemblage (Latour, 2005) that draws a labor body across diverse space time to reduce end of life commodities, this third nature, to their original chemical compositions as they would be found on the periodic table of elements without re-entering the earth to mine. Relying on the science of engineering and the science of chemistry these recyclables are smelted to produce metals that will be formed into new commodities that themselves are iterative of the same recycling process again and again and again. Therein, the reduction of entering the earth to mine metal ores is a method of saving the earth by using the metaphorical above ground mine of the world's trash and recyclable materials.

I organize this dissertation around a framework of the elements: earth, air, water and fire. Environmental philosopher, David Macauley (2011) argues how examining the human domestication of earth, air, water and fire can yield an "engaged experience and practical environmental action" (2). Macauley explains one of the key tasks of ecological philosophy as the reduction of cultural amnesia—where the domestication of the natural elements (earth, air,

water and fire) is obfuscated—and to begin to examine again "mediations that exist between us and the environment, between humans and the more capacious world" (2). I use the framework of the elements to examine recycling in each of my three field sites. I look at scrap metal collection in Chicago as a way of saving the earth through "above ground" mining. At the Port of Los Angeles I examine the shipping industry's role in moving recyclables as a newly-minted green enterprise that must focus on air and water quality alongside the need to grow business and generate more revenue. In India, I examine the domestication of fire and the use of heat to smelt recyclable metals in mini-steel and in integrated steel factories. In the final chapter, I examine the unseemly process of manually deconstructing ships—the very ships that carry commodities and scrap—in the tidal recesses of India.

The global environment is threatened by numerous and continuously heightening problems: steady increases in greenhouse gas levels in the atmosphere; landfill reduction that has lead to their unequal distribution; and resource extraction of virgin ores that continues to reduce sustainability goals. The EPA estimates that by 2020 developing nations, like India, will surpass developed nations in respect to greenhouse gas emissions; that recycling and diversion of waste from landfills will continue to be important issues and sites for public education; and diversion of waste from landfills through recycling programs will continue to benefit not only landfills, but will also lower rates of pollution to the air and water (EPA 2009).

The informal scrap metal economy has emerged alongside global environmental degradation. While it is traditionally profit-motivated, the informal scrap metal economy has unintended environmental benefits. At its most basic level, scrap metal recycling diverts materials from

traditional waste streams; reduces the need for virgin materials (steel can be reused at 100 percent efficiency); and it reduces carbon dioxide levels by sidestepping the polluting iron ore mining process. The underrepresented actors involved within the informal scrap metal economy are not those traditionally associated with the environmental movement, which makes their story all the more important to tell. In this ethnography I seek to expose not only the economic and environmental benefits of scrap metal recycling, but also expose and track the contribution of anonymous, underrepresented groups participating in the environmental movement in more complete and comprehensive manners. I chart the tangible and the potentially long-term consequences of the recycling of scrap metals to its labor force and the risks it poses to the environment and human health. This ethnography aims to shine a spotlight on this unacknowledged hero, so that environmentalists and policy makers will do more to recognize their labor, to ensure they are fairly remunerated, and to ensure that their inclusiveness in the environmental movement aims to limit the risks posed to their bodies and health as they are laboring stewards of this third nature of wastes and recyclables.

Chapter 1:

Things in the world

We have always lived off the splendor of the subject and the poverty of the object.
(Baudrillard 2008: 141).

Scrap is a metal; metal is an ore; ore is a subterranean substance that must be extracted from the earth. Once extracted from the earth—by the hands of men, women and children and the machines and tools that aid them—metals have meaning and value; they signify and are signified; they are desired and practical. Style, usefulness and the durability of things make them desired, consumed, and expended. The world of materiality and commodities is composed of metals:

the bloodline of lead in pencils;
the ball of a roller pen;
paper clips;
soda cans;
cars, trucks and buses;
ovens and refrigerators;
airplanes and trains;
fans and circuit boards;
knife and scissor blades;
bikes, trikes and strollers;
grocery carts;
the legs of chairs and tops of tables;
zippers, buttons and rivets;
wedding bands;
the arms of a clocks;
the guts of computers and cell phones;
scales and sailboat masts;
the hinges of doors and glasses.

My work on the commoditization of waste, with particular attention paid to scrap metal, rises out of a deep interest in the world of things, or to borrow and extend a term of Fred Myers, the "empire of things" (Myers 2001). However, I expand Myers's term to encapsulate what I refer to

as the "secondhand empire of things." In the empire of things (first order), let us call them commodified objects or things, that are the personal property of individuals and have use values that can be expended in a number of different ways because they are materially vulnerable and vulnerable to the whims and fancies, careless usages, diversions and misappropriations of the subjects who wield and possess them. Things break (Keane 2001, 2005). The desire through which one once looked affectionately upon an object fades. We fall prey to the "seduction" of new commodities (Chakrabarty 1999). Yet once this seduction wears off we might be shackled to these possessions (Thoreau 1942/1964). Tastes change (Bourdieu 1984). We might even attempt to keep up with Jones's through our status-making consumptive patterns and acquisition of things (Veblen 1927). In anyone of these scenarios, there is the possibility of these objects in the empire of things to transition into a second order, what I call the world of second-hand things. The empire of secondhand things enables the examination of things that are not new commodities, but rather commodities that have temporarily shifted from their position as commodity forms to waste only to reappear as "commodity candidates" (Appadurai 1986).

Though often ignored, things allow us to feel, to experience the world through their material properties, and to desire and strive. We may be incited through things as media to buy this condom or watch that film (Mazarella 2005). To see a beautiful thing in the natural world such as a boy, flower or bird, might incite one to reproduce this thing in the form of another thing: such as a sketch or a poem (Scarry 1999); in some sense to take one thing and turn its form into representation in another thing.[6] We might see and make metaphor from the thing. To see and

[6] This too is a certain indebtedness to Kant (1999) and Schiller (2004).

feel the home as cocoon or the lawn as an excess (Stewart 2007);[7] or this thing we call the home, might serve as the thing to challenge the foundational metaphors through which we have envisioned the home as nest, a type of space for love (Bachelard 1973)

The world of second-hand things requires that the objects are stripped, temporarily, of ownership properties. If an individual relinquishes the ownership of an object, the empire of second hand things is birthed in and through the empire of first-hand things. Therein, the number of possibilities for the "social life" of these newly re-ordered objects is only limited by the range of the individual or a collective (cultural) imagination.[8] Regardless of how objects pass through these two categories, and produce the possibility of objects being thrown away (made waste), exchanged via second hand markets (craigslist, ebay, greenshare, letgo), made temporarily inalienable (following Annette Weiner 1991), these ex-commodities were initially produced from naturally occurring elements (metal ores, fibers in plants, lumber) that were formed through human labor and became the personal property of individuals through commodity exchange in the form of purchase. While this a rather simplified version of property, labor and commodity forms, nearly all commodities have material resonances arising in the natural world, or first nature.

In this chapter, I use critical and anthropological theory to situate scrap as a desired object of exchange in a commodity circuit of scrap metal recyclables with global reach. I explore the

[7] Stewart writes, "Objects settle into scenes of life and stand as traces of a past still resonant in things: on a dresser top are loose change, pens, receipts, books, scattered jewelry, knick-knacks, a kid's drawing, and a long-discarded list of urgent things to do. A small wooden table by a window holds the promise of a profoundly secluded interior (55-56)

[8] What I mean by limits or possibilities of the collective/cultural imagination is absolutely idealistic and resonates in the space of what Miyazaki (2004) refers to as a method of hope centered upon the radical reorientation of knowledge.

nature of the commodity form and its disjunctures; the domains into which objects are categorized and the relations of relations within; the circulation of commodities; and the semiotic ideologies that create very specific types of subject object relations. Out of this examination and positioning of scrap metal as an important object of inquiry, I suggest that recycling and the development of above ground mines—the spaces in which scrap is collected without necessitating mining ores to produce commodities—relies on the materiality of these objects and the perceptions of the subjects who collect and mediate the passageways of these metals to achieve market value. I pay careful attention to the philosophical categories of first and second nature and their theorization and exegesis by anthropologists to not only unwind the process of recycling, but also to show the iterative process of the recycling process through the idea of waste and recyclables as a third nature, or a materiality that is part nature and part human-nature assemblage in the materiality of waste and recyclables.

Towards a theorization of recycling through the lens of first / second nature(s)

Humans and the natural world are often domained into separate frames. In following Raymond Williams (1980), I wonder what type of "betrayal" has been committed by separating human life from nature; therein separating the materiality that we wield and make use of in daily life from the traces that these things emanate from their materiality coming from this separated natural world. Further, how does this *betrayal* and *separation* relate to the politics of waste making and scrap. In the opening of his essay "Ideas of Nature," Williams muses, "One touch of nature [thus, posited as a universal] may make the whole world kin, but usually, when we say nature, do we mean to include ourselves? (p. 67). Williams seeks to close the "contrast," or gap,

between nature in the form of Thoreauvian nature with its "kindly effect" and the world of humans and their relations" (ibid). For Williams, by bringing human life into the same frame or domain—in following Marilyn Strathern as I theorize below—as pristine nature less risk is posed at "excluding the real and altering social relations" (84). Williams reminds us that it is "Out of the ways in which we have interacted with the physical world we have made not only human nature and an altered natural world; we have also made societies" (ibid). This making of societies in second nature, out of the elements of first nature, begets what I will term a third nature: the waste, detritus, and possible recyclables that scrap metal collectors seek.

Tim Ingold writes in many capacities of the relations and perceptions between humans and animals and their environments. Ingold, writes, "We humans find ourselves in an environment consisting of raw materials [nature] that have yet to be organized in a project of our own devising.[9] We perceive an essential disjunction between ourselves the organizers and this inherently resistant material" (3). There is in this example a very specific type of subject-object relationship that Ingold is specifying through this conceptualization of environment based upon how the material world is perceived and how it is viewed as resistant. The problem that Ingold sees with respect to human life, rather than animal or insect life, is premised upon separating the social from the ecological in terms of domains. Ingold writes,

> It is when we say that the environment comprises stones rather than missiles or hammers, caves rather than shelters, plants and animals rather than food, air rather than breathing space, trees rather than ladders and ground rather than platforms that we are

[9] In Ingold's language there is a specter of Levi-Strauss's bricoleur from the prior chapter and Heidegger's conceptualization of the ready-at-hand with respect to the materiality of nature and project fashioning.

> treating it in a fashion exclusive to ourselves. Such environment of essences (the habitat) does not, in itself, specify how it is to be exploited, or to what degree of intensity….that is for us to decide. (3-4)

In some sense, Ingold is calling for a composite or hybrid of human (cultural) and nonhuman elements (things/objects: missiles and ladders) to be included in an environment; a stance that folds the natural and cultural into a composite or hybrid form that does not give primacy to the cultural vestiges and materialities over those occurring in natural form. Ingold's call is to fold the human and cultural into a level playing field of the ecological: "And if we follow anthropological usage in reserving the concept of the social for intersubjective relations…we have a clear basis for *separating* the respective domains of social and ecological relations, instead of regarding the former as a subset of the latter" (ibid). Teetering on the call for a universal in the form of the ecological, Ingold's conceptualization is theoretically applicable in its resistance to see the cultural over other forms of "intersubjective," or hybrid, types of relations in the larger scale of the ecological, a stance that affords space for the natural and cultural in the same temporal and spatial frame. In applying this hybrid stance to the scrap metal economy, Ingold's theorization allows me to think of that materiality of scrap as an assemblage—of first and second nature—that carries with it the traces of both, or what I theorize as a third nature.

I see Marilyn Strathern's conceptualization of the domain and the use of attendant metaphors from nature as a powerful analytic through which to wind towards an anthropological stance of first and second nature and the generation of a theory of third nature, the creation of a hybrid mix

of the mineable materials of first nature embedded in the material detritus of second nature. The domaining of nature into the co-constitutive categories of first and second nature can be read more clearly through Strathern's concept, though I migrate the concept while acknowledging this liberty. In her text, *Reproducing the Future: Anthropology, Kinship, and the New Reproductive Technologies* (1992), Strathern was concerned with crossing natural domains with cultural domains. She achieves this type of hybrid stance through an example of a human embryo maturing outside of the maternal, human body (4). I acknowledge that there is liberal extension or migration, very much in keeping with what Strathern herself is saying about moving thoughts and analogies from one domain into the next, when I put forth that the debate on the qualities and characteristics of first nature and second nature are the very act or engagement of combining two separate domains: first nature (the natural world) and second nature (the manmade world). In combining these two domains, first nature and second nature, the latter borrows from the former in regards to language, foundational metaphors, analogies and materialities. This idea of migrating, translating and borrowing from one category to explain another, Marilyn Strathern refers to as the *domaining effect* (p. 6). In conceptualizing the domaining effect, Strathern conveys, "They [moving one domain into the next] point to an outcome of the domaining effect. In cultural life, in those habits of thoughts about which for most of the time we are very much unaware, the ideas that reproduce themselves in our communications *never reproduce themselves exactly.*[10] They are always found in environments or contexts that have their own properties or characteristics [separate domains]" (6). She continues,

[10] In respect to poetic works, Walter Benjamin suggests in his essay "The Task of Translation," that "Fragments of a vessel which are to be glued together must match one another in the smallest details, although they need not be like one another" (p. 78). He continues, "[A] translation, instead of reassembling meaning of the original, must lovingly and in detail incorporate the original's mode of signification, thus making both the original and the translation recognizable as fragments of a greater language, just as fragments are part of a vessel" (ibid).

> These environments or contexts provide a range of domains. We can think of all the social differences that opportunity, class, gender, expertise and so forth make to how the world is perceived; interests such as these form several such environments, and profoundly shape the nature of communication. Moreover, insofar as each is a domain, e ach imposes its own logic of 'natural' association. Natural association *means* that ideas are always enunciated in an environment of other ideas, in contexts already occupied by other thoughts and images. Finding a place for new thoughts becomes an act of displacement. (6)

This act of displacement of "thoughts and images," and to extend a bit, of theoretical conceptualizations, requires the movement of developed theoretical suppositions to act as foundational concepts. In effect, this movement of conceptual domains enables building blocks to be positioned towards a new domain, and thus requires what Strathern refers to as "an act of displacement." This act of displacement, in the context of the concepts of first and second nature, requires using the domain of first nature—with all of its attendant metaphors, analogies, processes, relations, and materialities—and temporarily displacing them, through the task of translation, while also being attendant to their very textures and qualities, as well as differences and likenesses, in order to produce a second environment and domain, second nature. Simultaneously, at hand, alongside this act of displacement, we might also think of this as a productive activity in that there is also an act of creation in the form of the new domain.[11]

[11] In this sense, then, there is something akin to what Bakhtin called the dialogic. Rather then getting caught in dialectics—the co-constitutive production of two categories tunneling back and forth from one another (think Hegel and Marx)—but, rather, the dialogic implies the creation of a third category that might be suggested arises out of the relational nexus, or the nexus two domains to borrow from Strathern. Strathern, in her text In her text *Kinship, Law and the Unexpected: Relatives are Always a Surprise* (2005), writes about bringing relations into other relations, self-reflexively, as a type of tool wielded by anthropologists. Strathern states, "Perhaps what anthropologists find

With respect to this extension and elaboration of Strathern's idea of displacement, Strathern carefully reminds that there is a relational quality to this process. Strathern writes, "An anthropologist would argue that to sustain a domain of ideas as a reference point is also to sustain its separateness. The difference between domains is affirmed by their being brought into relation—as when on supplements the other. Neither dimension will entirely substitute for the other; both are necessary, and the difference between each is sustained" (19). Accordingly, in relation to the scrap metal economy, to take objects from the domain of first nature (the pristine, untouched natural world for now) and move them into the domain of second nature (the human created world) fails to enable the complete substitution of one for the other, and, the material resonances of first nature will always remain in instantiated forms in second nature; that is even under a Marxian schema, be it as use values or commodity values. It is this very idea of relations within relations that I am interested in exploring in first and second nature through the scrap metal economy and the generation of a third nature. More specifically, if the anthropologist's tool is able to domain two sets of relations, into say first and second nature, then how is the duplex constructed and what happens when one moves between these relations bringing with one the conceptualizations and materialities from one domain into the next? This is important in the contexts of my fieldwork because we have the brokers (scrappers, traders, port authorities, foundries), who are mediators of the domains of first and second nature. As mediators of the mixed materiality, the mixed domains of first and second nature, these brokers are also creators of a new domain, the domain of third nature. The domain of third nature is the material detritus

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everywhere are two kinds of relations. Or rather, the realization that relationality summons divergent thinking…Now the relation is divided (into two kinds) in a powerful way that I want to call '*anthropology's relation*.' We may focus on the division that is presupposed in the two kinds [separate relations] or the routine social fact that they are managed in tandem. Either way, *it is the facility to deal with both together*, to operate two kinds of relations at the same time, that is the tool…In sum, as anthropologists use it, their sort of relation is a tool for investigation that the discipline has borrowed from widely shared social features of social life. What gives it purchase is the facility it offers for switching. (6-8) Or as she phrases the efficacy of this tool slightly differently, pithily: "The anthropologists tool is a duplex that divides as it combines" (7)

of society—waste in short, which is a hybrid materiality embodying the materiality of first nature and the either fully or partially expended use values of these ex-commodities in second nature. This third nature is not merely a hybrid domain of first and second nature. Rather it is a generative as well as iterative third nature that allows brokers mediating the stuff of first and second nature, which in themselves are also translations not just of one another, but of other materialities they point toward, as in the relationship between recovered, "above-ground mined" metal and the ores that remain unearthed.

Neil Smith's idea of the production of nature enables me to further expand and theorize the creation of the domain of third nature as it pertains to the scrap metal economy. One of the most pertinent, and overarching philosophical questions in my fieldwork was inherently ontological: what is nature? If the brokers in the global scrap trade were "saving the earth," as the higher-level metal brokers articulated, then they were certainly champions of nature. In addressing this "being" of nature, its contours, its theorizations, its materiality, its commoditization and its politicization, the way that it is framed to constitute subject positions, the scholars and writers I examine thus far have either directly referenced or hinted towards what Neil Smith has referred to as "the production of nature.[12] Neil Smith's article "The Production of Nature" (1983) examines the philosophical and historical bifurcation and domaining of nature into two categories, first nature and second nature. In what follows, I show how theoretically, as well as in

[12] Neil Smith's idea of the production of nature, finds its roots in continental philosophy, yet he shows how relying too heavily on these concepts places one squarely in the face of one of anthropology's major stumbling blocks: the nature culture binary. For a long period of anthropology's collective history as a discipline, binary thinking about topics as diverse and interrelated as primitive/civilized, nature/culture, man/woman, and pre-modern/modern have occupied the central position in ethnographic inquiry and scholarly production. The nature/culture binary, which Strathern (1988, 1992) as well as scholars as diverse as Sylvia Yanagisako and Carol Delaney (1995), Lila Abu-Lughod (1991) and James Ferguson and Akhil Gupta (1997), have all used to address the practicality, risk and the very usefulness of mobilizing the culture concept.

the natural and built worlds, the conceptualizations of first and second nature remain heavily linked, though often highly attenuated, with regard to their distinctive qualities, while at other times first and second nature bleed into one another theoretically and materially. In the end of this conceptual argument, I suggest that the conceptualizations of first and second nature are still resonant in my work in that the practice of recycling is a human intervention aimed at delivering the byproducts of commoditization in second nature and collected as material form of third nature back to as close a material form in first nature as can possibly be achieved through human intervention. In some sense, we might also perceive the detritus and leftovers, ie waste, of second nature as this third nature that must be wrestled with, collected and reformed; the other alternative for this third nature of waste would be the converse of mining; this third nature would be deposited back into the earth in the landfill or incinerated.

Neil Smith's analysis in his article "The Production of Nature"[13] identifies first and second nature within the capitalist mode of production. For Smith, in his reading of Marx, the objects of nature—sensuous objects in the external world—are at first appropriated by humans for use value. Smith, in following Marx, argues that as historical epochs shifted and technologies and modes of production developed, appropriating objects from the natural world shifted away from use values and towards exchange values. Smith finds that within the capitalist mode of production the production of nature is occurring yet it is obfuscated: "The idea of the production of nature is indeed paradoxical, to the point of sounding absurd, if judged by the superficial appearance of nature even in capitalist society" (368). However, he continues,

[13] Smith's title of this article indicates an awareness and play on the French philosopher Henri Lefebvre's groundbreaking thinking in *The Production of Space* (1974).

> Nature is generally seen as precisely that which cannot be produced; it is an antithesis of human productive activity. In its most immediate appearance, the natural landscape presents itself to us as the material substratum of daily life, the realm of use-value [usefulness of something] rather than exchange-value….But with the progress of capital accumulation and the expansion of economic development, this material substratum is more and more the product of social production….In short, when this immediate appearance of nature is placed in historical context, the development of the material landscape presents itself as a process of the production of nature (ibid).

Smith shows that in Marx's work the entrance point to drop the needle into the patchwork pattern of Marx's uneven conceptualization of nature is with the production process itself (370). Under a generalized schemata of Marx's thinking, Smith puts forth that the production process is one in which nature is altered by the hands of men: "Insofar as labor produces useful things that fulfill human needs, "it is an external nature-imposed necessity, without which there can be no material exchanges between man and nature, and therefore no life" (Marx in Smith 371). As historical epochs change, and production becomes centered upon commodity production for exchange, the scale is increased on which the production of nature [first nature] takes place (379).

Simultaneously, through the more complex division of labor, Smith reveals, "Human beings not only produced the immediate nature of their existence, but produce the entire societal nature of their existence [Second nature]" (ibid). In Smith's reading of Marx, it is at this point that laborers and communities—formerly isolated—are "knitted together in a concrete social whole" (379). For Smith, the emergence of society is the moment in which human beings separate from nature

in the sense that, "Society as such, clearly distinguishable from nature, emerges. Through human agency, a cleavage is created between nature and society, between a first nature and second nature" (380). In Smith's reading, society [second nature] houses the institutions that serve a regulatory, mediating capacity in the flow of commodity exchange.

So in Smith's reading of Marx, we see that successive phases of production, using sensuous objects of nature, produces society in the form of a second nature spawned from first nature. In this reading the crucial element is the spawning of second nature out of first nature, only at the moment in the historical shift of the production of objects out of the sensuous world changing from objects with use value to those with exchange value (379-380, 389). Smith does some short, yet efficient, genealogical tracking of the rise of the conceptualization of second nature only when societies shift to exchange-based production systems. He deploys Cicero's 2000 year old dictum that "One may say that we seek with our human hands to create a second nature in the natural world" (Cicero in Smith, 380). Or similarly, he tracks how the French scientist Count Buffon states, "a new nature can come forth from our hands" (Buffon in Smith, 380), to support the larger trajectory of his argument that nature is a site of production. While sinking his feet into the sand on the idea of the production of nature, Smith posits, "Once the relation with nature is determined by the logic of exchange value, and first nature is produced from within and as part of second nature, first and second nature are themselves redefined. With production for exchange, the difference between non-human and humanly created worlds becomes clear" (389). Yet, Smith, unwinds this story and bit more and shows that out of the German idealism of Hegel's time came what he refers to as "Hegel's idealist second nature" (389). For Hegel, under Smith's reading, it was not the material transformation of first nature into second nature through

human agency and action but "the manifestation of free will through a system of right as the economic and political institutions of modern society." He continues, "It was not the built structures that occupied Hegel's second nature but the legal system, the laws of the market, and the ethical rules of modern society—"the realm of freedom made actual, the world of mind brought forth out of itself like a second nature" (Hegel in Smith 380). [14]

Neil Smith concludes his essay with a similar thought on the abstraction and irrelevance of these concepts of first and second nature:

> The distinction between first and second nature is therefore increasingly obsolete. As a philosophical distinction between abstractly or ontologically equivalent or even similar realities, it was obsolete as soon as it no longer referred to the division between human and non-human worlds. As a division between materiality and abstraction, the distinction between first and second nature certainly captured the complexity of societal organization and its distance from primal nature…The production of first nature from within and as a second nature makes the production of nature, not first or second nature in themselves, the dominant reality (392).

[14] Smith quotes Hegel scholar Alfred Sohn-Rethel in reference to a more developed conceptualization of second nature than those proffered by either Cicero or Buffon: "In Germany the world of 'use' is often called 'the first or primary nature,' material in substance, while the sphere of exchange is termed a 'second, purely social nature' entirely abstract in make-up … [First nature is] concrete and material, comprising commodities as objects of use and our own activities as material, inter-exchange with nature; [Second nature] is abstract and purely social, concerning commodities as objects of exchange and quantities of value" (380). In Smith's use of this passage it helpful to have the etymological underpinnings of these terms, that is, in the German form in which they were used and conceptualized.

While Smith's point that first and second nature have become obsolete has some truth in it, and that the very conceptualizations of first and second nature are the products of second nature, I find the concepts, in relation to my work on scrap metal recycling to remain generative as a type of "theory machine" in following Stefan Helmreich (2011). Helmreich sees seawater as and object of anthropological inquiry, and how it factors for early anthropologists as a "symbol of changeable nature" (134). Helmreich uses seawater as a theory machine to warrant a picture of a "nature" that moves too fluidly to be captured by "culture" (135). Helmreich looks at seas as an analytic offering a new framework to examine oceanization, "a reorientation toward the seas a translocally connecting substance" (136). Helmreich writes of the task to hold water "as a theory machine, when useful, and to treat both water and theories as things in the world" (138). He refers to this approach as "athwart theory: "that is, as tacking back and forth between seeing theories as explanatory tools and taking them as phenomena to be examined. Such an account does not separate meaning and materiality because such sequestering only reinstalls a preanalytic nature–culture" (138).

In following Helmreich, if scrap metal is objectified as an object of anthropological inquiry, and a type of theory machine, how are the concepts of first and second nature both tools and phenomena? What then is the meaning and importance of the metal? Recycling is a process through which humans attempt to reduce an object, having had its life in second nature, as closely as one can ever get back to the chemical and material form in which it existed when it was moved from first nature into its initial phase of second nature. Or, stated slightly differently, the process of recycling objects is a complex process in which actors attempt to transform the

spent objects of second nature—this third nature—back to first nature.[15] However, those involved in the global scrap recycling trade must first wrestle with what I refer to as third nature—the mixing of the pure elements of first nature into the spent commodity forms of second nature. This third nature, as I discuss in the next chapter on scrap collection in Chicago, composes the above-ground mine—a scrap industry term that sees the topography of the earth as loaded with minable materials, or recyclables.

Things on the Move: Anthropology tackles the embedded thing in the commodity circuit

One of the major influences of my work on the making of the commodity form of scrap metal is to transform Arjun Appadurai's (1986) theoretically rich, though ethnographically thin, argument of the social life of things from theory to method. In doing so Appadurai's argument that things have social lives, meaning that things—in different time-space positions as mediated by different actors in an infinitely unknown, emergent, and contingent range of settings—can

[15] What I am suggesting here is to add a step, though a reversal of sorts, to William Cronon's analysis of Chicago's becoming as it relates to transforming first nature into second nature in *Chicago*: *Nature's Metropolis*. Cronon suggests that a large degree of Chicago's becoming and transformation from a rather small Native American community, literally "the land of garlic," to the capital of the Midwest, and the intermediary nexus of exchange and circulation of commodities across the United States from the West to New York City, was contingent upon the transformation of first nature into second nature through "reconstruct[ing] the linkages between the commodities of our economy and the resources of our ecosystem" (xvii). To reconstruct these linkages Cronon, as noted in this statement, domains the world of commodities to the economic and natural resources to the domain of nature. In this domaining effort, Cronon separates the world of commodities into the cultural and its socially constructed subcategory of economy; the materiality that enables a socially constructed, and one might even suggest performed economy contingent upon markets and actors (Callon and Calliskan 2009; Latour 2007), is nature and its species, resources and elements. Cronon loosely theorizes the concepts of first and second nature—two separate but intertwined domains that he separates and conjoins at will through the duplex—for the sake of what he refers to as clarity:
"At times, I use "nature" to refer to the nonhuman world, even though my deepest intellectual agenda in this book is to suggest that the boundary between human and nonhuman, natural and unnatural, is profoundly problematic. I do so because our language really has no good alternative for describing the nonhuman systems which humanity acts upon. I have tried to reduce confusion (but may have only heightened it) by resorting to the Hegelian and Marxist terms "first nature" (original, prehuman nature) and "second nature" (the artificial nature that people erect atop first nature). This distinction has its uses, but it too slips into ambiguity when we recognize that the nature we inhabit is never just first or second nature, but rather a complex mingling of the two" (xix).

eclipse the commodity form, become forgotten, be reinvented and be driven back into commodity candidacy. Appadurai's theorization of things on the move helped me to track the social life of scrap metals from Chicago through the Port of Los Angeles and into the subcontinent of India.

While Appadurai's work on the social life of things offers methodological and theoretical thought germs for this project, Appadurai's work on commodities and their cultural perspective also served a timely structural position in anthropological theory by invigorating debates haunting anthropology about the differences between gift-based and commodity-based societies as I discussed through Mauss. Appadurai's punchline, in this now canonical guide to thinking material culture and the movement of objects, was to argue that commodities and gifts were not quite as divergent as had been theorized (3). Appadurai's work, which is often muddled with Igor Kopytoff's (1986) piece on "commodity biographies" found in the same edited volume, opened the gates for an examination of the "making" of commodity forms and their circulations across different "regimes of value." By regimes of value, a term that has been employed by Fred Myers (2006), Appadurai acknowledges that things move across different spheres of social, political and economic life during which time these objects my obtain greater or lesser forms of economic, personal or affective value. Further, Appadurai's work opens a space to think of the multiplicity of possibilities in which objects during these spheres of exchange, in differing regimes of value, can be lost, broken, possessed, made inalienable, or in the instance of my work, moved into the ontological category of waste only to later emerge in reinvented and reinstantiated commodity form.

In thinking through Appdurai's work one might remember the *specter of Marx,* to borrow a term from Derrida (1992), haunting his argument. Appadurai seeks to break the division in anthropological discourse between exchange and gift economies—therein showing their overlaps. While Appadurai reads Marx a bit loosely, and bluntly inaccurately, with regard to Marx's ontology of the commodity, he is able to argue for the "social potential" (6) of objects and his argument leans towards establishing an analytic through which to conceptualize "regimes of value" and how, through circulation and movement, commodities both enter into and are removed from what he refers to as commodity candidacy. Appadurai writes, that commodities are "many different things" at "different points in their social lives;" more specifically, "the commodity situation (opens for Simmel relativism) the social life of any "thing" can be defined as situation in which its exchangeability (potency for the creation of value with Simmel) past, present, future for some thing is its socially relevant feature" (13). Within the social life of the thing, the commodity candidacy then becomes a thing's ability to move in and out of the commodity form through deeply divergent views of cultural groups who mediate this thing. For Appadurai, exchange is actualized in the moments where subjects in these social milieus, or points of social contact, embody and enact differing regimes of value or as he puts it they manifest "high and low thresholds" of exchangeability towards the objects mediated and exchanged (14-15). Appadurai examines, with respect to regimes of value, how "consistent with both high and low sharing of standards by the parties to a particular exchange such regimes of value account for the constant transcendence of cultural boundaries by the flow of commodities, where culture is understood as a bounded and localized [relative] system of meanings"[16](ibid).

[16] It is also possible to think what Appadurai refers to here through Pierre Bourdieu's concept of the field of cultural production (1993); the habitus (1972) and class-based consumptive patterns (1984).

These types of thresholds of high and low exchangeability are acted out in what Appadurai refers to as tournaments of value (22, 50).

Appadurai is also attentive the concept of diversion in the becoming of commodities. The concept of diversion is crucial to my work on scrap metal commoditization in the sense that waste becomes diverted from the waste stream and transformed into a commodity form via an unforeseeable number of actors mediating the passage of waste-as-things in their social lives. Diversion can open a space for entrepreneurial spirits—such as scrappers—to push objects/things into unforeseen arenas of both profit-making and the removal of goods from commodity candidacy in the sense that Weiner (1992) writes of "inalienable objects," those objects that claim a different value and temporal and spatial position that rests outside the bounds of circulation. For Appadurai, diversion can negate or enhance value (28). When thinking of diversion, one must carefully ask as well about the idea of "intended uses." In the 4th chapter, I examine the circulation of used things through the Indian concept of jugat—or shifting objects into domains for which they were originally not intended but perform with fluidity for the newly found users.

Arjun Appadurai, writing in reference to his seminal 1986 work *The Social Life of Things*, speaks to the shifty, troubling switches of things or manners of diversion of things from their practical uses into new and unforeseen spaces:

> The idea of objects having a social life is a conceit I coined in 1986 in a collection of essays titled *The Social Life of Things*. Since then, I have continued to be engaged with

> the idea that persons and things are not radically distinct categories, and that the transactions that surround things are invested with the properties of social relations. Thus, today's gift is tomorrow's commodity. Yesterday's commodity is tomorrow's found art object. Today's art object is tomorrow's junk. And yesterday's junk is tomorrow's heirloom. Furthermore, any and all things can make the journey from commodity to singularity and back (Appadurai 2006, 15).

In this retrospective glance, Appadurai pays much attention to the temporality of things: "today," "yesterday," "tomorrow." Yet, time in Appadurai's handling here is placed, grammatically speaking, in the adjective position modifying the nouns of the things: "junk," "heirloom," "found art object," "gift," "commodity." As the temporality in which the adjectives (time-specific qualifiers) and the things (nouns: junk to commodity) rotate in an order that allows any number of possibilities for these transformations. When then does junk become an heirloom and an heirloom junk, or when does junk to shift to art? Despite Appadurai's suggestions of the potentiality of objects to circulate he does not theorize the intricacies of their potentiality to circulate, or what I will theorize as the cycles within cycles or relations within relations as they relate to global scrap circulation by means of trade.

Often, as things, like scrap metal, begin their circulation from possession to waste to a collected item by scrappers to a new commodity, the object crosses what Fred Myers discusses as hierarchies or regimes of value. Fred Myers conceptualizations enable me to situate my fieldwork on scrap recycling, along the track of its social life (circulation within cycles), through an attentiveness to where these crossings of regimes of value occur and which actors mediate

these transgressions at differing structural positions. Fred Myers comments on the import of Appadurai's volume by arguing how Appadurai made room for multiple processes of market value and regimes of value to occur within one frame: "Perhaps we understand "commodity" and "commoditization" less well than we have presumed. Appadurai recognized how difficult this was and chose to expand the framework of commoditization to include many more circumstances of circulation….The importance of this shift is that the boundaries are not placed around different kinds of exchange, and it recognizes….that different types of exchange may coexist within a social space" (59). Against a Frankfurt School-esque approach of total commodity domination, Myers suggests a more inclusive space to view the commodity and processes of commoditization:

> It is not always the case that the market's domination is complete: other systems of value may coexist, and their meaning may be reconstructed in relation to the presence of market practices….so we must imagine that commodities and commoditization practices are themselves embedded in more encompassing spheres of value production. Such systems recognized the existence of distinct regimes of value but also combine and reorganize the activity from these various contexts into more complex mediations as what Annette Weiner might have articulated as "hierarchies-in-the-making"—in a word, culture making (59).

What Myers refers to here as "complex mediations" within value production that allow the possibility to "combine and reorganize" helps me to analyze the labor of scrappers as brokers

who serve as itermediaries between two distinct regimes or scales of value: disvalue and market value.

Things as Actants, Patients, Assemblages and Actor-Networks

Appadurai's work on things, as Myers pointed out in relation to culture making through Weiner, happens across and within spatial and temporal boundaries. It is helpful in these cross-cultural 'regimes' and 'tournaments' of value as they relate to scrap metal collection and commoditization, across divergent spatial and temporal boundaries, and their subsequent transgressions, to examine regimes of value by examining what agentive roles the things (scrap) themselves possess. The agentive role of persons *and* objects—here scrappers and scrap, respectively--and the differentiations, similarities, nuances and mediations therein. The work of STS scholars opens a slightly funkier space to explore how the collection of scrap metals relies—not only on a changed subject-object relation—but even suggests the possiblity that the scrap itself has an agentive role in influencing scrappers actions (labor) to collect it.

Alfred Gell's *Art and Agency* (1987) stands as a watershed in the anthropological record for his theorization of the agentive roles of things, objects and artifacts (art forms). Gell conceptualizes two relationally-based positions for objects and people that he coins *patients* and *actants*. A thing such as a car or child's doll can be, in particular relationally-based fields, either the agentive actant (thing that is doing actions or performing agency) or as the patient, the object or thing or person upon which action is being directed. Gell writes, "The concept of agency I employ here is exclusively relational: for any agent, there is a patient, and conversely for any patient there is an

agent. This considerably reduces the ontological havoc apparently caused by attributing agency freely to non-living things, such as cars"(22). In distinguishing these things, in the forms of cars, Gell states, "Cars are not human beings, but they act as agents and suffer as patients 'in the (causal) vicinity of human beings such as their owners, vandals and so on" (22). What Gell refers to, in accord with Appadurai's emphasis on the movement of things in their social life across boundaries, is that the positioning of things in subject-object dichotomy of continental philosophy renders things in a fixed, and even reductive, rather than relational space.

Gell subdivides agents into the categories of primary and secondary agents. Gell is careful in this division to not grant primacy to human agents but, rather, to order these two categories in a manner that shows the shifting causal vectors and intersections of agency and causality: "I am prepared to make a distinction between 'primary agents,' that is, intentional beings who are categorically distinguished from 'mere' things or artifacts, and 'secondary' agents which are artifacts, dolls, cars, works of art etc. through which primary agents distribute their agency in the causal milieu, and thus render their agency effective" (23). He continues, "But to call artifactual agents 'secondary' is not to concede that they are not agents at all, or agents only 'in a manner of speaking' (23). To clarify these distinctions between first order and second order agents, Gell furnishes the example of landmines to typify that, while planted by the hands of human soldiers, landmines retain an agency of their own. Gell's mines have traces of the human act of causation, wherein their intentional placement to act in the secondary role of agent is tied, in trace-like fashion, to the human who planted them thus rendering, or producing, this human as a distinctive type of subject: "Anti-personell land mines are not (primary) agents who initiate happenings through acts of will for which they are morally responsible, granted, but they are objective

embodiments of the *power or capacity to will their use*, and hence moral entities in themselves" (24). What Gell alludes to here is the arc of his argument that '[T]hings with their thing-ly causal properties are as essential to the exercise of agency as states of mind….Because the attribution of agency rests on the detection of the effects of agency in the causal milieu, rather than an unmediated intuition, it is not paradoxical to understand agency as a factor of the ambience as a whole, a global characteristic of the world of people and things in which we live, rather than as an attribute of the human psyche, exclusively" (25). Gell's thoughtful analysis moves things out of the subject object-divide of continental philosophy and enables things, when placed in the actant role, as capable of wielding and inflecting their own agentive properties affecting human and social life.

Another extension of what Gell referred to as the "world of people and things" is enabled through Bruno Latour's actor network theory in his text *Reassembling the Social* (2007). Latour suggests that we should trouble and dismantle the certainty through which the social is given primacy in disciplines such as sociology, specifically, and the social sciences more generally. Latour believes that actors, with all of their drives to act, should be considered as only a fraction of what constitutes the social. Latour calls—in similar fashion to Gell—for objects to be folded into the category of actants. Seeing the lack of objects and things in the sociological record, Latour's social "[D]oesn't designate a domain or frailty or some particular item, but rather is the name of a movement, a displacement, a transformation, a translation, an enrollment. It [the social] is an association between entities which are in no way recognizable as being social in the ordinary manner, *except* during the brief moment when they are shuffled together….Thus social, for ANT, is the name of a type of momentary association which is characterized by the way it

gathers together into new shapes" (64-65). These new shapes require that things be shuffled into the examination of networks which thus enables looking at frames of "momentary association" within these networks.

Borrowing from literary theory, Latour suggests that an actor does not take the position of *subject* central to continental philosophy as I discussed in the earlier section. Conversely, Latour suggests that an actor "is not the source of an action but the moving target of a vast array of entities swarming towards it" (46). Latour suggests that action, the agentive role granted *ex post facto* to *subjects* who act, needs to be troubled or made uncertain: "Uncertainty should remain uncertain throughout" (47). He continues, clarifying the meaning of the term actor: "[T]he very word actor directs our attention to a complete dislocation of the action, warning us that it is not a coherent, controlled, well-rounded, and clean-edged affair. By definition action is *dislocated*. Action is borrowed, distributed, suggested, influenced, dominated, betrayed, translated. If an actor is said to be an *actor*-network, it is first of all to underline that it represents the major source of uncertainty about the origin of action[.]" (46).[17] Thus, the uncertainty of who acts, sculpts the form, and sketches the outline of the actor as indeterminate as well. This becomes particularly interesting when one thinks, as my project does, on the indeterminancy of the material of scrap metal, as well as the routes scrap metal travels within networks or commodity circuits.

Like Gell, Latour creates space for the role of objects as actors. Latour criticizes sociology for displacing things in search of the social: "As soon as you start to have doubts about the ability of

[17] David Graeber's (2001) theory of action—as being co-constitutive of the meaning making process—is equally helpful to think through action and agency alongside Appadurai and Latour.

social ties to durably expand, a plausible role for objects might be on offer. As soon as you believe social aggregates can hold their own being propped up by 'social forces' then objects vanish from view and the magical and tautological force of society is enough to hold every *thing* with literally *no thing*" (70). One can take from this statement a call for the return of things as an objects of inquiry, while it is also necessary to remember Appadurai's collapsing social and thing into the same frame. In Latour's view the role of things/objects has been obfuscated from sociological view because of the definitions of what constitutes the social, agency, and actor. Latour writes, "If action is limited a priori to what 'intentional,' 'meaningful' humans do, it is hard to see how a hammer, a basket, a door closer, a cat, a rug, a mug, a list, or a tag could act….If we stick to our decisions to start from the controversies about actors and agencies, then *any thing* that does modify a state of affairs by making a difference is an actor—or, if it has no figuration yet, an actant" (71). In this statement Latour, not only alludes to the agentive properties of things, but also suggests, through this conceptualization of the actant, of a space for emergence and becoming for actors, actants and the mediation(s) that are created between the two.

Latour calls for objects to be included in the sociological purview of the constitution of actors. In response to the reductionist theories of materialists writ wide, Latour suggests, "Objects are never assembled together to form some other realm anyhow…..Their action is no doubt more varied, their influence more ubiquitous, their effect much more ambiguous, their presence much more distributed than these narrow repertoires. The best proof of this mulitiplicity is provided by a close look at what objects really do….they deploy many *other* ways for objects to act than the ones granted to them by their author's own philosophy of matter. Even as textual entities, objects

overflow their makers, intermediaries become mediators"[18] (85). Latour is not attempting to grant magical properties to the things and objects of the world. Rather, he suggests that objects as *participants in the course of action* do not determine action, ie baskets *cause* the picking of provision or a hammer 'imposing' the striking of nails. Instead, thinking of objects as participants would "mean that there might exist many metaphysical shades between full causality and sheer inexistence" (ibid). In addition to 'determining' and serving as a 'backdrop for human action,' things might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid….it might mean letting elements in which, for lack of a better term, we would call *non-humans*" (72). The term "letting elements in" enables a particular type of leverage to be applied when inquiring about how scrap metals incite—to add a verb form to Latour's list above—particular types of action: scrapping, collecting, holding, "bartering, trucking, and trading," shipping and creating networks of buyers and sellers of recyclable metals.

Working at times in collaboration with Latour, and in conjunction with his theoretical suppositions of networks, Michel Callon and Corey Caliskan (2009) want to make space for objectification—what they call framing—the process of thinking the economy through markets and prostheses/tools which can help expose the wide range of economizing techniques and performances. Simultaneously they want to expose "a flat world rather than a hierarchical one," emphasizing the creation of room for difference and diversity not domination and singular

[18] Much of Latour's argument about what is social, as well as the ontology of the actor and actant, hinges on this distinction of the intermediary and mediator. For Latour, the intermediary is fixed and has a shaped, fleshed form: "An intermediary, in my vocabulary, is what transports meaning or force without transformation: defining its inputs is enough to define its outputs." Dissimilarly, "Mediators, on the other hand, cannot be counted as just one; they might count for one, for nothing, for several, or for infinity…their specificity has to be taken into account every time. Mediators transform, translate, distort, and modify the meaning or the elements they are supposed to carry" (85).

thinking (21). One potential outcome of their program would be to "design, elaborate, experiment, change, maintain and extend" our agencements (7-8).

An agencement, taken from a French term maintaining no direct equivalent in English, is a phrase that they borrow from Deleuze and Guattari in order to enumerate its meaning. Callon and Calliskan tell us that the term agencement comes close to the English word arrangement. Agencements "are endowed with the capacity to act in different ways, depending on their configuration" (7). So, like Latour's actor and actant, the agencement poses the possibility of placing the human and the thing in the same frame. Agencements have the ability to collapse categories and relationships between heterogeneous things and to behave as a singular form making specific actions possible through a type of "hybrid collective" where the inside and outside of, for instance a computer and person or pilot, plane, and radar, make an action collective. Thus, through the concept of agencement, there exists the capability of collapsing the inside and outside of things and objects, and the actions that they perform, into one another: "This means that there is nothing left outside *agencements*: there is no need for further explanation, because the (eventual) construction of its meaning is by definition part of an *agencement*. A socio-technical agencement includes the statement(s) pointing to it and interpreting it, just as the creating instructions are part of the device and participate in making it work. We use the French word *agencement*, instead of arrangement, to stress the fact that agencies and arrangements are not separate...from the point view of their capacity to act. (II: 7). In thinking of agencements rather than arrangements, people and things work together to bring together a certain type of collective action—one without boundary or no inside and outside—which muddies the waters for research possibilities by calling for a different type of register or

frame in which ontological borders are shattered or at least blurred. With regards to the scrap metal economy in this ethnography, a gendered agencement of men and metals is created through the labor of Chicago's African American and Latino scrappers collecting scrap metals—objects that businesses and households deemed waste, the detritus or third nature created through expended use values, over-consumption, changing tastes and the reality that our things break over time.

Semiotics and Things

Semiotic analysis by anthropologists and critical theorists is of import in this exploration of scrap metal recycling to ground the different ways through which people view things. More specifically, the gaze through which people view objects—including their meanings and multiple values over time—creates differing scales of value (which I elaborate upon in the next chapter) with respect to objects that might be broken, trashed, kept, circulated or coveted. It is the way that people perceive, and how they feel about objects, that offers the *potential* for things to enter the waste stream and become minable by scrappers in the above ground mine.

Anthropologists have used semiotics to decode property rights (Maurer and Richland 2010), ontologies of commodities (Kockelman 2006) and semiotic ideologies as they relate to materiality (Keane 2005, 2009). Webb Keane suggests that in the same way that our bodies are never stable forms of matter, partially because of their openness to other bodies and materials, neither are the objects through which we engage with in the world. These objects too are subject to unstable uses, interpretations, or semiotic ideologies. Webb Keane—through his work on

semiotic ideologies, the linguistic concept of bundling and a commitment to Peircean semiosis—thinks too of vulnerability in terms of objects. Semiotic ideologies, for Keane, do deal with signs though not exclusively: "There is no reason to conclude, however, that semiotic ideologies are a total system capable of rendering all things meaningful. Indeed, I would suggest below that the openness of things to further consequences threatens to destabilize existing semiotic ideologies" (2005: 191). This destabilization is the very space where vulnerability enters with respect to subjects' perceptions of objects, how they recognize the signs and what the signs mean to them, as well as how semiotic ideologies and the material objects that go into making semiotic ideologies are vulnerable to shifting contexts, interpretations, times and spaces (2001: 70). For Keane material objects are vulnerable as well because of their actual materiality. This vulnerability of the material object points towards an indeterminate, contingent future.[19] Beyond the merely contingent Webb Keane argues that semiotic ideologies and the "things" encapsulated in these ideologies can distinguish the types of possibilities of people as well: "A semiotic analysis of the social power of things would thus demand an account of the semiotic ideologies and their discursive regimentation that enter into or are excluded from the processes by which things become objects. For these are the same processes that configure the borders and the possibilities of subjects" (423).

In his introductory chapter to his edited volume, *The Empire of Things: Regimes of Value and Material Culture* (2005), Fred Myers argues, following Webb Keane, that seeing things as

[19] This indeterminacy, specifically in relationship to signs can also be seen in the actual writing of Peirce to which Keane is quite indebted. For Peirce knowledge is derived from empirical engagement through "direct observation" (1955: 75) with the world and its objects to glean the appearances of these objects. Knowledge begins with our perceptions of matter. Further, as Peirce states, "we only know the actual through the potential. It would be a little less erroneous to say that we only know the potential through the actual, and only infer qualities by generalization from what we perceive in matter." (75)

objectifications must go beyond Saussure's arbitrary nature of the sign. Myers writes, "Things are objectifications in a more complex sense than the doctrine of the arbitrary sign would have it; their materiality is overdetermined as they genuinely mediate—indexically—social processes. This involves not only the temporal dimension of the process into which objects enter but also the reorganizations of value consequent on processes of recontextualization" (22). He continues, "The multiples uses, mobility, and durability of objects allows them to extend the agency of their producers and original transactors. But the same properties entail the possibility that they will become detached from their transactors altogether" (ibid). Part of this detachment points towards how "The materiality of objects and their endurance through time make them particularly susceptible to such shiftings of trajectory, to being switched from one regime of value to another, and the seemingly singularly availability for such processes of construction as take place in the organization of identities and temporalities" (58-59). Aptly Myers, makes reference to Claude Levi-Strauss's bricoleur[20] a figure who recognizes the "multivocality[21] in objects—the oversupply of meaning."[22]

[20] For Levi-Strauss, the bricoleur works by signs, where the engineer works by concepts. Levi-Strauss believes signs to be the intermediary between images and concepts (19). In this sense then Levi-Strauss sees signs—though resembling concepts in regard to reference—as limited where concepts are unlimited. Through the example of the Bricoleur, Levi-Strauss believes the first step of the Bricoleur on a given project to be retrospective, that is in the sense that he looks back across his inventory of tools and materials from prior work to execute his project. He takes inventory of this heterogeneous collection of objects to discover what they could "index" as answers to his problem; he "interrogates" this collection to discover what each material or tool might "signify" for his problem. The example LS furnishes is of a cube of oak, that might be used the bricoleur to extend a piece of pine on the one hand or to serve as a pedestal on the other. Because this material of a block of oak was preconditioned in another project (ie, its size, shape, grain and so forth) is "pre-constrained" by its prior constitution wherein the work of the engineer is more "world-rich" in the sense that while materials matter as well to the execution of a project, he operates in the realm of concepts, theories and designs that while informed by a prior period as well, do not define, in the sense of limiting, the possibility of his projects. Levi-Strauss writes of the Bricoleur:

"[T]the bricoleur, also, and indeed principally, derives his poetry from the fact that he does not confine himself to accomplishment and execution: he 'speaks' not only *with* things, as we have already seen, but also through the medium of things: giving an account of his personality and life by the choices he makes between the limited possibilities. The bricoleur may not ever complete his purpose but he always puts something of himself into it" (21).

Paul Kockelman (2006), in his article "The Semiotic Ontology of the Commodity," uses Peircean semiosis to explore how Guatemalan villagers lead tours in eco-cloud forests. Learning the ways that tourists expect material (nature) and knowledge (information about nature and rooms, foods, dress, and affective needs) enables villagers to lead eco-tours. These eco-tours produce money for the guides, and preserve the local by tapping into the global through preservation politics—a form of neoliberalism that focuses not exclusively on the "consequences of commoditization" but equally upon its conditions of "quantification and standardization of various domains of social life and the subsequent commensuration of these quantified and standardized domains" (78). To "account" for this general commoditization and political economy of what appears to be "the least material, commensurable and alienable of processes" requires *semiosis and sociality in situ* (ibid). Kockelman aims to bring together Marx's dialectic and Peirce's semiotic. Kockelman critiques the dialectic as getting hung up in the subject-object dichotomy where the semiotic of sign-object-interpretant trichotomy enbables the exploration of meaning in everyday interactions and transactions that consist of semiotic processes by foregrounding the sign-interpretant (81). Kockelman is also apt to point out that meaning gets trapped in Sausserean semiology, and instead can be better seen as a "relation between relations"[23] (82). Moving through Peircian semiosis Kockelman sees the semiotic process, in

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[21] The term multivocality, is borrowed by Myers from Victor Turner's classic enthographic study of Nbembe ritual in The Forest of Symbols: Aspect of Ndebmu Ritual (1957). Turner defines multivocality or polysemy as "a single symbol [that may] stand for many things" (50). He relates this idea to the study of larger cultural and societal means in that "This property of individual symbols is true of a system as a whole. For a few symbols have to represent a whole culture and its material environment. Ritual may be described, in one aspect, as quintessential custom in that it represenst a distillate or condensation of many secular customs and natural regularities." He continues, "Certain dominant or focal symbols….Each dominant symbol has a "fan" or "spectrum" of referents, which are interlinked by what is usually a simple mode of association, its very simplicity enabling it to interconnect a wide variety of *significata*" (50).

[22] Levi-Strauss's Bricoleur "Has no precise equivalent in English. He is a man who undertakes odd jobs and is a Jack of all trades or a kind of professional do-it-yourself man[.]" (17)

[23] See also Maurer and Richland (2009) who use Peircian semiosis to show the iterative unfolding of the tripartite arrangement of custom-law-market, while showing how interpretive communities are composed of 'tangled'

contrast to Saussure, as the relation between two relations; that is on the one hand a relation between the sign and object while concurrently there is a relation between the object and interpretant. Kockelman points to the second relation arising out of the first relation; therein, there is unfolding of relations, or in Peirce's term there is a "relation between relations." Accordingly, for Kockelman, meaning is not framed by a standing for (single relation; Saussure's tree) but rather in terms of "a relation (of correspondence) between two relations (of standing for)" (82). What this enables then is looking at firstness, secondness and thirdness in a way that "assumes that human-specific modes of semiosis (turning on thirdness: symbols and interpretants) are grounded in modes of firstness and secondness (icons, indices, signs and objects); that is where indices "indicate spatiotemporal or causal continguity," icons "stand for similarity of qualities (shape, size color and texture)" and symbols "embody arbitrary relation but are culturally embedded" (82).

This theoretically driven chapter helps me to ground the manners in which waste is transformed into a commodity value in the scrap metal economy. A combination of lenses—those of ontologies of nature in Neil Smith's work; the movement of things via Arjun Appadurai's "social life;" the relations of things to people and their multiple meanings through Webb Keane's work; the movement of things across categories and domains in Marilyn Strathern's theorizations and migrations; and the way that sign field and meaning are made as a series of "relations of relations" in Paul Kockelman's semiosis—help me to situate, extend and theorize the meaning of scrap metals as a very particular thing in the world.

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hierarchies constituting a particular domain (24). It is in these entanglements that we are able to see Richland and Maurer's larger argument that law offers the possibility of alternative interpretations and can be every bit "a messy and contingent field of open-ended and pragmatic meaning making" (24). And for Richland and Maurer this is what enables one to see the relationships between market and custom, law and market and custom and law where they "come into unfolding and changing correspondences with one another" (25).

Scrap metal is begotten of the ores of first nature—the minerals buried deep in the earth and extracted through the labor of machines and men and women around the world. These ores are then transformed into metals that are then transformed into commodities with use values in second nature—refrigerators, stoves, cars, toaster ovens, and the tips of ballpoint pens. Once their use values are expended, or tastes change, or they break, these once new and sexy commodities are thrown away or made alienable by their possessors. It is the detritus of society's consumption, of waste-making and trashing, that composes the materiality of the third nature that I have theorized throughout this chapter. The perception of waste as a commodity form falls outside of the purview of the average citizen who generates this third nature. For scrappers—those who collect metallic objects and see in them a different value beyond their resting point as household or industrial waste—a different relationship between sign and interpretant opens into a very different sign field. In this field, in following Paul Kockelman, meaning is made in the "correspondence" of a set of relations within relations. Therein, scrappers identify the correspondence of these "things" as an object of value, a currency of sorts, that is highly desired in the globally driven scrap metal economy.

Chapter 2
Saving the Earth:
Above Ground Mining in Chicago

how they swayed/
to light striking metal…

-Yusef Komunyakaa (2004, 21)

"See that out there…(pauses pointing to the 'spectacle' of a three-story tall by 150-foot wide pile of 'junked' metal) those are piles of dollars. As soon as I move those piles of dollars I have more piles of dollars. The dollars are circulating constantly…that's what we do here."

-Jonathan Morietti
Chicago Scrap yard Owner

The Above Ground Mine is a term used within the scrap metal recycling industry to denote recoverable and recyclable metals that to most are little more than waste. Above ground mines exist in nearly every corner or the world and range in scale and weight from sunken ships and shipping containers in the ocean; to the rebar jaggedly etching its way out of piles of concrete after a building has been demolished; to the six pack of empty beer cans that have been deposited into a recycling bin. The above ground mine connotes *possibility, potentiality,* and *chance*. The possiblity, potenitality and chance of entering the above ground mine—that is in the sense of identifying minable materials, discovering where the mine exists and then "mining" its materiality—relies more often than not on racially and ethnically marked peddlers or scrappers who collect metallic resources and transform their value from waste to commodity form. From a theoretical angle, scrappers are able to realize the market potentiality of these metals lies in recognizing and commensurating several "scales of value" (Guyer 2004) that to most seem too disparate, dirty or downright uninteresting to conjoin. Based upon my fieldwork in the alleyway infrastructure of Chicago with scrappers, scrappers see their labor, first and foremost, as a form of entereprenurial activity—of being their own bosses—in which their labor collecting metals results in money when they sell to the scrapyards. Taken together, I suggest that the scrapper's ability to commensurate varying scales of value, through the development of relationships and making themselves avaiable in the alleyways for the chance of finding metal, enables not only their entreprenurial enterprise to exist, but creates a third type of value or global good by keeping items out of the landfill and placing them in the recycling stream. They are, in a very material sense, saving the earth by placing recyclable metals with global value into a commodity stream rather than back into the earth in landfills.

Scrap metal—the necessary materiality to construct and imagine the above ground mine--is produced by nearly every American household in multiple post-consumptive forms: aluminum foils and cans, e-waste (spent televisions, computers, phones, stereos); materials from renovations (lighting fixtures, electrical wires, stoves and refrigerators); and even the broken-down, non-drivable "project" vehicle that has been sitting untouched in the driveway for a decade[24]. Scrap, potentially, enters the above ground mine from acts as diverse as the sundry duty of ridding the house of waste to more complex vectors of consumption in the forms of commodity indulgence, over-consumption, and the shifting vectors in service and repair of electronics and automobiles and mobile phones that have been produced for decades under design schemas of planned obsolescence. [25]

Higher-level actors in the scrap metal economy articulate themselves as champions of the environment and therefore of nature. In championing nature, these actors *rescue* scrap through stewardship that redirects the metals from an anti-environmental care resting point of the landfill. The landfill, materially and semiotically, thrusts itself in the cultural imaginary as a place of filth, decay, decimation, and the very embodiment of wastemaking. A landfill, I suggest, is the end point in the life of spent commodities—a graveyard of sorts that is bereft of use and economic value. The scrap metal economy works against the embedding of objects into sites like landfills, which themselves stand in direct contrast to taking objects—spent, broken, shaved, spun, rusty, forgotten—and placing them into a commodity flow that works with the basic material elements

[24] The two most recycled objects in the United States are cans and vehicles (https://www.worldautosteel.org/life-cycle-thinking/recycling/).

[25] I suggest that the industrial "above ground mine" also exists. However, as I show in the 4th chapter on smelting and steel production in India, the industrial above ground mine is a space of negotiated, contracted and privileged access to its collection by major metal brokers and dealers. Here, in the chapter on mining in Chicago, I treat the above ground mine as a form of commons—one that can be entered by anyone in Chicago's alleyway infrastructure.

the various metals hold, and reshapes them into objects with economic and use value. In broad articulative brushstrokes, to view scrap metal as above ground mines is to view in scrap the elements of the earth in the cast offs of second nature—the third nature, even, of human civilizational excess. Yet, insofar as the scrap metal economy works against entering the actual and material earth, I argue—from a purely analytical, materialist purview, that the elements of the earth are seen in material form in objects that by others would be seen as waste. There is a transformation of thinking that comes through knowledge of what the material (chemical basis) of these metals come to stand for and what the transformation of the base elemental structure of these objects makes possible through technological and chemical knowledge implemented in factories. To champion above ground mines is, without entering the earth, to position oneself as a steward of the environment. Entering the earth is a violation of the order of things as they stand. Mining has a long and rich history of controversy in the abuses of labor, the beseech domination of the land itself and the people who live on it during colonialism. The three major research sites that this ethnography covers—Chicago, Los Angeles, and Bombay—are all the subjects themselves of the changes made to land and landscape over vast periods of historical time. Bombay was 7 islands transformed by the Portuguese colonists in the 17th century into contiguous land by backfilling into the Arabian Sea. Chicago—"the land of garlic"—expanded its landmass into Lake Michigan by backfilling the debris from the great fire of 1887 into the lake. Los Angeles is a built desert that used its location on the Pacific Ocean to create one of the largest seaport complexes by backfilling miles of the ocean to create land. Central to all three of my research sites was that their location along waterways enabled the human harnessing of 'natural infrastructures'—riverways and oceans—to enable the movement of peoples and goods therein making them sites for the deposition of populations, goods, and capital. It seems difficult

if not outright impossible to separate humans from nature as I discussed in the prior chapter through Raymond Williams. Yet, the human intervention—the ability to decide how to deal with this third nature of detritus--mined from first nature and crafted in second nature—enables analysis of this global recycling commodity circuit as both source and site and potential solution to the overproduction of consumer goods and their overconsumption through purview of the urban mine and its miners.

Scrap metal collection, or 'scrapping' as it is referred to by my informants, takes place in a specific built environment. The reason why scrappers appears in such pronounced volume in Chicago, estimated to be approximately 5000 working full time, is because of two factors: the flows of capital and the scale of the built environment. David Harvey believes that capital moves in uneven patterns across geographical boundaries and finds its sinks, or what he calls 'spatial fixes,' in which to embed itself. What this does is to distribute capital in specific geographical environments unevenly (2000: 22-24). The city of Chicago is one of the major sinks of capital in the United States. It is considered the capital of the Midwest and is one of the three largest American cities by population, after New York and Los Angeles. The City of Chicago has approximately 3,000,000 residents in the city proper.[26] In addition to these three million residents, are the businesses and industries that support this population. Taken together, the residents, businesses and industries in the City of Chicago produce tens of millions of pounds of post-consumptive waste, which scrappers "mine." In most cases, residents and smaller businesses move this waste from their property into alleyway waste receptacles. The City's nearly 1,900 miles of alleyways (Time Out Chicago 2008) produce a conduit of streets

[26] http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/Fun04.pdf

connecting two Chicagos: the one traversable on the main roads but also an intricate network of alleyways paralleling nearly every major road in the city.

In Chicago's alleyways are city-issued and privately-issued black, trash cans and blue recycling bins, in addition to dumpsters which are collected by private waste management companies. These trashcans, recycling bins and dumpsters are the waste receptacles where city residents and business owners bordering the alleys throw away their waste. The alleyways are rife with people—predominantly men between the ages of 30 and 75—who scour these waste receptacles for objects, such as clothing, furniture, food, and electronics.[27] In short, these people look for either items that can be used in their personal household, given to family members and friends, or that can be resold. The easiest items to collect in alleyways and to resell are, without question, various types of scrap metal. The men, usually Latino or black, who collect this metal are referred to as scrappers.

The most noticeable scrappers in the alleys are men who 'run the alleyways' in dented, 1970s and 1980s model, full-sized, pick-up trucks. They look for metallic objects thrown away by the households and businesses bordering the alleys. To 'run the alleyways' means to drive trucks at low speeds, generally around 5 miles per hour. Driving at this low speed allows scrappers to look constantly to their left and right—towards the trashcans that line both sides of most alleyways—to spot and secure objects made of metal that have been set aside as waste. This method of 'running' or 'combing' the alleys to find objects composed of metal is enacted by the

[27] These men are not the only people who scour the alleyways for valuables. More 'well-to-do' people also hunt for antiques, vintage doors and windows for rehabbing houses and apartments, and other sundry and unique items for their households. While there are marginalized and more affluent subjects in the alleys searching for things other than scrap metal, for the purposes of my fieldwork I did not place any emphasis upon them beyond noting their presence and observing what they were looking for.

scrapper in an attempt to secure a 'load.' A 'load' is the metal placed—or more commonly thrown—by the scrapper into the truck's bed. The scrapper piles the load as high as possible with various types of 'pure' metals (copper, aluminum, brass) and assorted objects composed of metal or that have metal contained within the 'belly' of the machine (microwaves, televisions, computers). The metal objects in the bed of the truck press upon each other and are usually held down, regardless of how high they are stacked, by the scrapper's expertise at fitting the objects together in a jig-saw, puzzle-like fashion.

When I made my first observations of scrappers, I thought that scrappers were singularly this group of men in trucks. I learned that scrappers also work on foot with large trash bags, on bikes with aluminum frame backpacks, with shopping carts, with rolling suitcases, or with 'stolen,' City of Chicago, black, wheeled trash cans. These containers are used by scrappers to hold and carry the metal they are collecting from within the alleyways. The alleyway scrappers not in trucks are more likely to rummage through the contents of the waste receptacles looking for metal.[28] In Chicago's alleyways scrappers in trucks are not only the most recognizable scrappers, but they are also at the top of the alleyway scrap metal hierarchy. In this hierarchy, scrappers in trucks are followed by those who push shopping carts, those who ride bikes, and then those who work on foot carrying bags, rolling suitcases or working from behind the City of Chicago trash cans. Scrappers in trucks aim to collect large, heavy items, such as stoves, refrigerators, ovens, and old wrought iron fences. These are items that they exchange with scrap yard owners and for which they get paid based upon weight at a rate of $225 dollars per ton. The other types of

[28] My informant Rick believes that there is an ethos to scrapping metal in the alleyways. He states, "Yeah man sure. If one person be making a fuckin' mess in the alleys, that fuck's the shit up for everybodys. It's cool so long as you pick up after yous fuckin' self and people don't care about the shit you be doin' in they's garbages. But when one person done come along and be fuckin's shit up, makin' messes and shit, then it bes everyone's problem. You gotta clean that shit up and not leave it all layin' on the ground."

scrappers—who are limited by the much smaller space of the containers they put the metal in—aim to collect valuable metals such as copper, aluminum, and brass which have higher exchange values per pound than the heavier metal objects collected by scrappers in trucks.

Scrappers can further be defined as any person who exhibits purposive action to collect metal objects. Scrappers apply this purposive action to collect metal objects with the sole intention of exchanging, or selling, them to a scrap yard. This definition implicates a much wider circle of subjects involved in the scrap metal economy than those who 'run' the alleyways. It includes much larger and some smaller actors. Specifically, public utilities companies bring in their excavated, metal sewage pipes after new pipes have been put in the ground. These pipes are delivered to the scrap yard on flat-bed, eighteen-wheel trucks and the 'load' can weigh up to ten tons. Other scrappers include electricians and their assistants, workers and foremen on constructions sites, auto body and auto repair shop employees, and even household members who after cleaning out the basement or doing a renovation project bring their metal to the scrap yard. The unifying belief of all people who scrap metal is that metal has an exchange value at a scrap yard. A subject who scraps metal views the object as having a monetary value and therefore the object is not waste, something discardable. For any of these scrappers to exchange the metallic object, they must collect or hold onto the metal object, deem the time spent taking, or as scrappers call it 'hauling,' the object to the scrap yard, and waiting in line to exchange (sell) the object to the scrap yard.

In this ethnography, I focus on scrappers who work by running the alleyways. Through this methodological preference, I analyze a group of scrappers who, despite being at the top of the

hierarchy of scrappers, are the lowest-level subjects in the overall Chicago scrap metal economy. By lowest-level subjects I mean that alleyway scrappers are laborers who toil through chance and the maintenance of durable social relationships, more like miners panning for gold in the old West, perhaps, than an employee of an industrial mining concern. This method of scrapping depends highly upon the chance of finding scrap in alleyway waste receptacles and through the cultivation of relationships with businesses that produce scrap. This separates them from scrappers who have access to scrap metal on construction sites or through businesses in which the owners organize, save and sell the scrap metal themselves. Alleyway scrappers come to depend upon chance, timing, and the cultivation of relationships to procure scrap metal. Therefore, I argue that as a node of value transformation in this global commodity circuit, Chicago's alleyway scrappers' labor affords a critical lens to examine how the procurement of scrap, thus the creation of value through a material medium, is meted out by a particular group of marginalized subjects who lack access to other resource networks. Further, I examine how scrappers use the alleyways, establish relationships with local businesses, and position themselves close to what many consider waste, to secure scrap metal and exchange it for cash at the scrap yard. Furthermore, the labor of alleyway scrappers allows a way to see how marginalized subjects pursue a livelihood through the collection and sale of metal which was considered waste by other subjects while simultaneously being quietly involved in the environmental movement—a movement that tends not to be inclusive of ethnic and racial minorities.

Scrappers do not articulate themselves as specifically engaging in mining activity, nor do they perceive themselves as significant parts of the environmental justice movement. In the former

sense, scrappers are a source of labor for a larger global network of recyclers who have yolked green discursive trends to their already existing business models. While scrappers neither perceive of themselves as miners nor do they see themselves as environmental activists, I suggest that due to the sheer volume of poundage collected by these men, they are reducing objects that could potentially enter the landfill. Therein by and through their labor—which enables them to be "entrepreneurs"—they are reducing landfill space and putting objects back into a more carbon neutral setting for manufacturing.

Scrappers' economic and personal dreams are brokered through their knowledge of scrap's value on the market and the chance that a day in the alley will enable them to collect enough metal to exchange at the scrap yard for the money. Scrappers see metal as a form of money. My informant Rick believes that each type of metal—aluminum, copper, brass, pig iron—represents a different type of money, since scrap yards pay different amounts of money for different types of metals based upon their weight and market value. For instance, copper is the most valuable metal; it represents a metallic object that produces the highest form of money. In its stripped form—for example the wire left when the black plastic casing on a power cord is removed—is sold for a little over $3.50 per pound in July and August 2008 when I conducted my fieldwork. Aluminum was selling for approximately $1.20 per pound (at approximately 34 soda or beer cans per pound).[29] These 'monies' that my informant Rick refers to, are obtained when the metal is exchanged for cash at the scrap yard. Taken together, the multiple monies—in the form of different metals—represent a total sum of money that is earned by a scrapper through his labor collecting metal and the exchange that takes place at a scrap yard.

[29] (www.recycle4life.com/environmentalimpact.com)

Once a scrapper has worked to collect a 'load' of scrap metal, the scrapper makes a second 'run' to a scrap yard. They must choose from over 30 scrap yards in Chicago where they can sell the metal. A scrap yard purchases the metal from its customers on a per-pound or per-ton basis for the various metals the scrappers bring to the facility. After the metal is sorted and weighed, the scrapper exchanges the metal for cash. Competition between scrap yards in Chicago is currently at fierce levels because of high international demand for scrap metal, specifically from China and India. It is reported by journalists and scrap yard owners alike, that the scrap metal is sold to these as well as other 'developing nations' to help build these nation's infrastructures and economies (see New York Times 2004, 2008).

Together, a Chicago scrapper and the scrap yard, represent the first and second brokers, respectively, in the commodity circuit of scrap metal. Nearly everyone I interviewed, and most importantly my key informants and the scrap yard owners, reduced the complexity of the labor, the networks, and the number of hands that set scrap metal into motion in its social life, to the end of money. Both scrappers and the owners of the scrap yard aim to hold onto the scrap for the shortest time possible. For the scrappers in trucks, the method of collecting is to quickly fill the truck's bed with scrap, process whatever amount of metal will be stripped from the objects, and take it to the yard to be sold; the same would hold true for any of the alleyway scrappers. Similarly, the scrap yard processes and sorts the metal objects purchased from scrappers and sells them to the next actor on the next scale in the commodity circuit. Time is incredibly important to scrappers and the scrap yard owners. Scrappers aim to sell their metal to the scrap yard as quickly as possible and get back into the alleys to secure another load. Similarly, the

scrap yard owner's move scrappers in and out of the yard as quickly as possible and move on to the transaction with the next scrapper. Quite simply, money is made by scrappers and scrap yards through the exchange of metal objects, and time and efficiency are of crucial importance to the amount of money that can be made.

In early July, I met my first informant, Omar, at a South Chicago scrap yard. The owners and managers of the scrap yard where I conducted my research warned me against working with Omar. They claimed that Omar was the 'biggest hustler in business.' Jonathan Morietti, the owner of Chicago Iron and Metal Works and the foreman of the scrap yard told me that Omar was caught repeatedly stealing from the scrap pile—the 30 foot high by 150 foot wide pile of pig iron that has been positioned in the center of the yard.

I met Omar on my second day making observations at Morietti's scrap yard. My presence at the yard was interpreted in varied ways. I was thought either to be an undercover agent of the police task force investigating the scrap metal economy to see who was stealing what, or a journalist ready to reveal a story on the scrap metal trade for an expose on how the enterprise was full of thieves. Still other scrappers, including Omar, believed I was writing a book on the scrappers. I told Omar quite explicitly that our conversations might end up in a book someday, but for the time being I was simply trying to write an MA thesis for my degree at the University of Chicago. He replied, "Yeah that's fine. I can work with you, but if you write that book I want to be in that too."

Omar talked with me on this first meeting about how the entire scrap metal economy was driven by money. He told me that money is the central part of the economy and it is really that simple: "It's real, real simple. Matt, man, it always, always about the money." I asked, "Always?" And Omar replied, "Always." In order for me to ride with him—which was strongly warned against as Omar had been asked temporarily to never return to the scrap yard—Omar required me to exchange metal that I had collected for him. Omar was the first of many informants who required that I exchange metal for their knowledges and techniques of scrapping. Because the whole economy is based upon exchanges of metal by different actors at different levels, in hindsight it was not surprising that scrappers were not willing to give me "something for nothing" (Veblen 2007: 172).[30] Although I gave Omar 560 pounds of scrap metal[31] in exchange for several days of scrapping with him, my exchange never resulted in a ride with Omar.

In my interactions, Omar never came to embody the 'worst of the worst.' On five or six occasions he neglected to pick me up; or, when we had scheduled an appointment to go scrapping, he showed up with three scrappers in his van or with his wife, thus leaving no room for me to ride in the van. On one level this indicated Omar's reluctance to let me scrap with him, but it also exhibited the more general way that scrappers in trucks or vans usually work in teams of two. Despite this setback of not actually allowing me to scrap with him, Omar provided me with invaluable insights about the labor required to scrap metal and the techniques to get the

[30] Thorstein Veblen's general argument, through the use of this term, is that business owners who are not actually working—through physical labor—constantly produce capital by extorting their employee's labor. Veblen writes, "The high ideal which of moral right animates these good citizens is the pursuit of a 'competence' is to get something for nothing, to get legal possession of some source of income at a less cost than its capitalisable value"(2007: 12)

[31] In the evenings during the six weeks that I conducted my fieldwork, I drove my truck through the alleyways collecting scrap metal to exchange with my informants. My personal 'scrapping' attempts were, in all honesty, met with little success. However, I did obtain enough metal to generally satisfy the exchange required by informants who were willing to work with me.

most value out of the metallic objects he collected. He showed me the inside of his van which had built-in compartments for tools with which to take metal objects apart. Omar let me watch how he used these tools to 'work' the metal objects before putting them in the scrap pile at the yard. By 'working' metal objects Omar meant stripping the more valuable metals out of objects such as refrigerators, ovens, window air conditioners, and small motors. This technique of 'working' a metal object is not only a form of labor, it is also a form of knowledge about the metal object and what is contained within its 'belly'—the innards of an appliance, radio, or television. Omar showed me that beneath the bottom of a freezer compartment in a refrigerator is a radiator/cooling element that can be chopped out of the plastic bottom of the freezer with a handheld axe. This cooling element alone is worth approximately $5 to $6 dollars. He let me hold the element when it was removed, which might have weighed somewhere between a pound or two, and told me that removing it from the larger appliance barely alters the weight of the whole refrigerator that is sold for the pig iron at a rate of $225.00 per ton.[32]

Omar shared his knowledge of the metallic objects and the labor involved in scrapping; he also told me more specifically about his feelings about the labor he performed and about how he used the money he earned scrapping. The money Omar made scrapping was his only source of income[33]. Scrapping metal was the only occupation he could imagine doing. Scrapping provided a livelihood for him and his wife. The money derived from scrapping financially supported his daughter through high school, something he was quite proud of. As far as Omar was concerned,

[32] Refrigerators weigh, on average, between 150 and 200 pounds. This weight positions their value at the time of my study at approximately $15 to $20 dollars. Thus, by removing the cooling element which contains copper and aluminum, the refrigerator and the separate sale of the cooling element raises the money earned by $5 to $6 dollars for taking approximately 2 minutes to extract this element with the axe.

[33] When I returned to Chicago in the winter or 2013, I learned from the foremen at the Chicago site that Omar was in jail for heroin possession and distribution.

scrapping was a way to make money, to support his wife and daugther and to pay for his van. Of equal importance was the pride that he took in his work.

Regimes of Value

On its surface the scrap metal economy is 'always, always about the money,' as Omar stated. It is about the collection, exchange (sale) and redistribution of scrap metal. And money does come to serve as the measuring instrument of labor and material (scrap metal). Yet, Omar's statement reduces the complex series of networks, relationships, markets, competition, sites for collection of scrap, and the labor expenditures of subjects within the scrap metal economy to the irreducible end of money. To follow scrap metal through its social life in the scrap metal economy of Chicago required me to ask specific questions about value to understand how money became the measurement at the end of all of these complex factors. I entered the field with a simple empirical question: How do scrappers see value in their work and what metallic objects have value? As I began my fieldwork this question lead to more complex questions: How do scrappers obtain specific metal objects with high exchange values? How do the scrap yards determine the value of metallic objects? Who does not value objects made of metal and places them in a space for scrappers to obtain them?

These questions about value pointed me in several directions simultaneously. In my work with scrappers and through the observations I made at the South Chicago scrap yard, I discovered that there was not a simple, nor a conclusive angle to address value singularly. I needed to address three angles of value:

1. How and why scrappers found value in their work.
2. Who *dis*valued metal objects and placed them in a space for scrappers to obtain them.
3. What exchange value(s) types of metal objects had at the scrap yard.

These three angles of value overlap each other. Taken together, they not only make scrappers' work possible specifically, but also allow the scrap metal economy to exist in general. Thus, value in the scrap metal economy turned out to be a series of overlapping scales of *value(s)* meted out in different ways by different actors. In *Marginal Gains* (2004), Jane Guyer theorizes differning scales of value and the economic actions of Atlantic Africans in scalar value making. Guyer writes of the possibility of commensurability with regards to scales and their differences in the complex acts of value making: "When one scale is not exactly reducible to the terms of another, a margin for gain lies in the negotiations of situational matching. The gain can be either conventinonlized or singularized, recognized or concealed, foregrounded or backgrounded depending upon the context" (51)

In following and applying Guyer's idea of "gain" for scrappers this would occur in the "negotiations of situational matching" occurring in the commons of the alleyway. To most, the alleyways in Chicago are of little interest. They are merely conduits that enable people to move their cars into and out of garages and enable access to the surface streets. Further, they are a space designated for the expulsion and removal of waste and tend to be as highly trafficked by rats and birds and cats hunting for vitals as they are by people. As the space of the alley is open to anyone, and waste and waste receptacles generally do not create territoriality and claims of property rights, anyone may use this commons of the alley. Here, I identify two scales of value

that, in applying Guyer's ideas, require scrappers to use "situational matching." Scrappers *situationally match* two distinct scales of value. The first scale inculcates the material waste landscape in the alley, what I refer to as the scale of discarded value or disvalue which is composed of the third nature that I theorized in the previous chapter. The second scale of value is that of the market value of scrap. The market value of scrap is a knowledge that the scrapper carries with him when he works an alley.[34] He knows, for example, that ferrous is *currently* selling for $225 a ton; that coppers is selling for $3.75 a pound; and that stainless is selling for $1.75 a pound. Situational matching, in following Guyer, would then depend upon matching these two scales of value to one another or commensurating two or more things that at first seem too incongruous to bring into the same value frame:

> The most basic condition of realizing these ambiguous (to us) potentials lies in the conceptual separation, the nonreductive qualities, of scales and classification and valuation. Every "commensuration" (Espensland and Stevens 1998) remains open for revisiting, and this potential is in some sense alluded to even when there are accepted conventions for matching one scale to the value to another…Gain is a challenge: to get, to conceptualize, to justify. Some degree of optative freedom for linking number to object is a resource not just for making material gains but also for representing them in meaningful terms such as number" (52)

[34] These market values of scrap fluctuate from day to day and week to week. The market that pays out the scrapper shifts due to globally-dictated political and economic circumstances for which no scrapper even ponders the intricacies. The pondering and calculation in these markets is reserved for the analysis and estimation of scrap yard owners who themselves can only make sense in limited fashion of the prices they receive which are dictated by the London Metal Exchange and passed down to American scrap dealers through the Institute of Scrap Recycling International, ISRI.

To bring these incommensurable domains[35] together, scrappers must commensurate the scale of disvalue (the discarding household or business) with the scale of market value at the scrap yard. In Chiago's scrap metal economy, scrappers commensurate these two scales through presence in the alleyways; this presence entails a physical showing up, a presence, by means of driving the alleys in search of scrap. Running the alleys avails scrappers to two potential ways to achieve scalar matching: chance and the development of relationships. Chance as Jane Guyer explains, "[Falls] outside of the calculative nexus." (64). However, with respect to scrapping, scrappers mediate, therein reducing, the lack of "calculative nexus," by developing relationships with households and businesses that border the alleyways. The development of relationships where scrap can be procured regularly, potentially, reduces the unpredictability of chance. In the scrap metal economy, as my ethnographic evidence alludes to in this chapter, teeters betwixt and between relationships and chance and showing up in the alleys, or laboring. Put slightly differently scrapping relies on the extension of relations of relations with regards to people and things.

Scrappers find value in their work for two reasons. The first is that the collection and exchange of scrap metal results in money. The second is that they see themselves as self-employed, or as one scrapper stated, "There ain't no bossman with his thumb in my back all day. I'm the damn bossman when I'm scrappin.' " I will discuss labor at length in a later section on how important this second mode of value creation is to scrappers' images of themselves and their work. As

[35] Guyer further argues a more obfuscating use of number in the global economic landscape: "[T]he capacity of numbers to express other values is now a hegemonic idea in the modern economy, enforced by law and inculcated by competitions and professional organizations. After initial struggles over the terms for each new domain….the equation of qualitative and monetary scales eventually erases the constructions and disjunctures that have been overridden. It is only by a massive discounting of the "tournament of value" that we can retain the notion of the theoretical dominance of supply and demand in "markets" as the main representation of the operation of value in modern economies" (52)

David Graeber points out, value is established at the scale of individuals in the way that "people make their actions meaningful to themselves" (2001: 47). I read Graeber's statement as ascribing an agency to subjects. Thus, subjects act to create meaning according to a self-determined scale fitting their subjective needs and desires. Or as Webb Keane writes, "One common site in which to locate the source of value is the desires of the individual person." (2001: 66). Scrappers' desires and personal values stem from the sense of agency they feel over their lives in being their own bosses as well as through the labor they engage in which produces money.

Although scrappers' individual desires affect the way they subjectively see value in their labor, the exchange value of the metal they collect and sell to a scrap yard is fixed by a global commodities market. Each month the ISRI sets prices for specific types of metal (aluminum, copper, brass, stainless steel, pig iron, etc.) based upon the London Metal Market's figures. They pass these prices down to the scrap yards, and the scrap yards pay scrappers based upon these prices for a calendar month, running from the first day to the last. The exchange value of scrap metal is the price that the scrap yard owner pays the scrapper for metal through these figures for a specific type of metal with a specific weight.[36] Therefore, the exchange value of metal at the scrap yard—paid to the scrapper in cash—does not offer a scrapper room to assert their agency or subjective constructions of value. Exchange value at the scrap yard is a form of value that reflects the value of commodities on the global market. Thus, the exchange value of scrap metal is a scale of value reflecting global market trends and all the economic, political, and

[36] This is the way that exchange value works for *most* scrappers at the level of my study. However, the bigger scrappers—which can include the City of Chicago, private utility companies, and major construction companies—are paid higher rates than the alleyway scrappers. The owner of the scrap yard where I conducted field work told me, "We do actually pay people different amounts, but most of these guys [the scrappers I was able to work with] do not know this. If you bring in a lot of metal, consistently, we pay you a little bit more. The goal is to keep the guys who bring in the most weight coming back to us. This is a very, very competitive business and we are always looking for an edge on the other scrap yards. Paying more to particular people, the bigger ones, is one way we do this."

social factors embedded in this complex market (Myers 2001: 8). The money that scrappers earn is highly variable because they are subject to these market trends and figures. Neither the scrap yard owner's prices, nor the global commodities market which determine these prices, allow scrappers space to contest the prices they are paid for metals according to their personal scales of value.

Between a scrapper's scale of value in their labor and exchange value at scrap yards as determined by a global commodities market lies a third scale of value. This third scale of value I refer to as the scale of disvalue or the way that people are willing to throw away, give away or sell items. Thus, according to a personal scale of value, subjects in the scale of disvalue are willing to release certain objects from their possession. To disvalue an object is to make it alienable. In following Annette Weiner (1992) and Daniel Miller (2001), an alienable object becomes easily parted with by its owner because of its difference from an inalienable object. Weiner writes of inalienable objects, "[C]ertain possessions become subjectively unique removing them from ordinary social exchange as they attain absolute value rather than exchange value" (1992: 37). These inalienable objects come to have this absolute value through "prestigious origins, successions, or an edifying authority connected to the past like gods, divine right, ancestors or high status [which] make these particular possessions different from other things even of the same kind" (ibid). Because scrap metal is found in alleyway waste receptacles and is often procured by scrappers from auto repairs shops, the objects scrappers collect is either already waste or on its way to becoming waste. Scrap lacks the genealogical ties to important figures; it does not embody unique qualities or characteristics that make it unexchangeable; and

it lacks a subject's attachment of personal sentiments, as Weiner outlines with regard to inalienable possessions.

Under most circumstances, scrap can be seen as an alienable object, something that is parted with easily by its owner, which makes it far different from what Weiner calls inalienable possessions. Daniel Miller argues that the commodity form is the "most alienable of all objects" (2001: 95). Yet, scrap is not yet a commodity in the hands of a scrapper. It began its social life as a commodity form purchased and possessed by a subject, and in the hands of the scrapper it has temporarily fallen out of commodity candidacy when it is made waste, or disvalued, by its owner. Miller's concept suggests the ways that commodities are subject to loss of personal value, alienability, for any host of subjective reasons. These subjective reasons can include mechanical failure, the influence of marketing trends, or changes in an owner's taste. This is what Webb Keane implies when he writes that objects "are available for multiple interpretations; and that throughout they remain material objects and thus vulnerable to all that can happen to things" (2001: 70). One of the vulnerabilities of material objects, including former commodities like scrap metal, is that they are made alienable, or parted with by their owners. Scrappers depend upon the movement of commodities from owned possessions to alienable possessions. Scrappers' economic livelihood is dependent upon locating what I have termed scales of disvalue, where objects are readily made alienable from their owners.

It is possible to see the scrapper's scale of value, a scrap yard's scale of exchange value, and the subject releasing a metallic object in the scale of disvalue through Arjun Appadurai's concept of "regimes of value" (1986:15). In his influential work on an anthropology of 'things,' Arjun

Appadurai calls differing scales of value 'regimes of value,' to mean that specific commodity exchanges are "consistent with both very high and very low sharing of standards [values: personal or exchange] by the parties to a particular commodity exchange" (ibid). The concept is useful for understanding the scrap metal world. A piece of scrap metal, when it exists in a space released from its owner, who no longer values it, is not yet a commodity form. Different regimes of value—from the discarding owner to the scrapper, and the scrap yard owner—represent *distinct*, temporarily separate domains. Taken as a whole, and operationalized into unison through a tripartic scheme of action and relation (release-gathering-purchasing), these regimes of value compose a singular regime of value, what I have called the scrap metal economy.

The scrap metal economy's ability to function and exist relies upon these three, not mutually exclusive yet distinct, regimes of value. In the first regime of value, the household member or business owner sees the item as no longer having value and therefore it is alienable or releasable from possession. In the second regime of value, the scrapper sees the metallic object as having an exchangeable value at the scrap yard. It is at the intersection of these two regimes of value that a scrapper's work becomes meaningful and possible, economically as well as personally. The third regime of value involves the scrap yard's owners who have created a business based upon knowledge of an existent global market for scrap metal that allows the scrapper to bring the pieces of scrap metal into what Appadurai calls its 'commodity candidacy' (1986: 12-13). The moment that the object is released from what Walter Benjamin calls its 'magic circle of possession,'[37] ownership, the item is no longer a commodity (1999: 487). This space of the

[37] Benjamin does not use the term magical in the sense of sorcery or conjuration. He uses the term magical to imply the way that subjects come to imbue objects with a series of subjective values through ownership. Taken from his essay "Unpacking My Library: Notes on Collecting," Benjamin believes that ownership of objects, in this case books, creates a material inventory of objects that "speak" (reflect) the identity and style of the owner.

metallic object lying between and betwixt 'commodity candidacy,' or its likelihood to be seen by subjects as a commodity form, is the space where the scrapper positions himself to re-wrap the object back into the magic circle of possession**.**

Scrappers mediate the fault line between these two regimes of value and are acting subjects who bring scrap metal back into commodity candidacy. The scrapper serves as a rational, acting subject who collects scrap metal with the knowledge that it is exchangeable at a scrap yard. The scrapper depends upon a "fault line,"[38] a term I borrow from John and Jean Comaroff (1992: 18), to determine an opening or rift of dissimilar ascriptions of value. Scrappers locate this fault line between their personal scale of value and that of the scale of disvalue. Further, the scrapper's scale of personal value is not divorceable from the larger global commodity circuit for scrap metal, which has made scrap metal's salability possible through the creation of an international market. For scrappers to identify and then act in the space where this fault line opens, is to position themselves in a situation like Appadurai described as a moment where 'very high and very low standards' exist in a given exchange. While not yet a commodity form in this fault line, the fault line exists as both a moment and a space where a scrapper acts to collect, or possess, and therein mediates the future life course of the scrap metal.

By intentionally positioning themselves in this fault line, scrappers serve as subjects who reincarnate metallic objects. By reincarnate, I mean that the scrapper seeks to possess the metallic object with the intention of selling it to a scrap yard, where the metallic object is

[38] John and Jean Comaroff use this term in their text *Ethnography and the Historical Imagination*. The Comaroffs use the term—in a critique of social historians—to show how surrounding the tricky concept of power social historians have shown that subjects exhibit contestations: "….[C]ultural history has been particularly adept at revealing that all social fields are domains of contest: that 'culture' is often a matter of argument, a confrontation of signs and practices along the fault lines of power [.]" (1992: 18)

delivered away from the scale of disvalue to the scale of exchange value. In his article "The Reincarnation of Souls," Akhil Gupta offers a way to address theoretically how objects are mediated and reincarnated once they are released from possession. Gupta's article deconstructs the binary between reincarnation as a strictly Eastern idea and its presence in the West. Gupta believes that Western markets and commodities have reincarnative qualities. He writes, "I want to argue that…the idea that forms of rebirth circulate widely in the West warrants further investigation"[39] (1992: 203). Gupta suggests that Igor Kopytoff's concept of the "cultural biography of things" is one specific way to address reincarnation in the West. Gupta writes,

> [O]ne way to see the generality of the phenomenon [reincarnation] is by considering what Igor Kopytoff has called the "cultural biography of things." By doing a life-history of a commodity, one can trace its birth (that is, its invention and initial commoditization), the various rites of passage in its life (that is its movement across spheres of exchange or its movement across thresholds of exchangeability), its death (due to withdrawal from circulation), and if applicable its rebirth (due to recommoditization). (205)

Following Gupta's argument through Kopytoff, I mark the "rites of passage" of scrap metal as the scrap metal's journey (or social life), as mediated by the scrapper, through the "movement of exchangeability" from the possessor in the scale of disvalue, to the scrapper, to the scrap yard. In these "rites of passage," I locate the "death" of the commodity from circulation in the moment that the possessor of the object in the scale of disvalue makes the object alienable. The scrapper must position himself in this fault line to move the metallic object from its "death"—what Gupta

[39] Gupta argues that reincarnation occurs through this cycle with regard to Western commodities, market trends, and seasons in general, and he applies this idea to fashion commodities in particular (see also Bourdieu 1984; Hansen 2000).

refers to as its "withdrawal from circulation"—to its rebirth. The rebirth of scrap metal, under the stewardship or mediation of the scrapper, occurs the moment the scrap metal rests on the scrap yard's scales. Gupta's reading of Kopytoff can be applied directly to show how "thresholds of exchangeability" is very much appropriate to the discussion of scrappers mediating waste and moving it from one scale of value (the alley trash can / floor of an auto shop) to another scale of value (the scrap yard where it is exchanged for money).

Auto body shops and auto repair facilities that border alleys are prized sites where scrappers identify a scale of disvalue. I conducted three interviews with automotive related businesses in an attempt to identify how scrappers approach these businesses and to understand why auto body shops and auto repair facilities' owners often give their scrap metal to scrappers. Two of these businesses where I conducted interviews were car repair shops and the other was an auto body shop. Of the two car repair shops, both owners said that scrappers approach them two to three times a day. Sigmon, the owner of West Mechanics, said that he never just gives away the scrap for free: "I know that they are making a lot of money off of the stuff in here. Why should I just give it away? To let them make money off of me for nothin'? No way." I asked him how much he generally charges the scrapper and he said, "It just really depends on the day, but usually five or ten bucks. I don't really want the stuff in here, but I ain't gonna just give it away either. But if you charge too much the shit just piles up and sits around in here and I don't want that either. So they're actually helping…but it's not for free." Sigmon's scale of disvalue for the metallic car parts he owns is marked with a certain ambivalence. In his statement, we hear him saying that the metal is not something he wants to keep or exchange at scrap yards himself. The metal is waste that is cluttering his facility. However, Sigmon's scale of disvalue is not so low that he is

willing to give the parts to scrappers for free. Because he is only charging between $5 and $10 dollars for the parts to be made alienable, his scale of disvalue for the car parts is low enough for scrappers to be willing to pay this sum.

Justin, the owner of Northside Motors, had piles and piles of metallic car parts that had come off of the vehicles he repaired. When I asked him about the metal that was sitting in piles all around his shop and if he ever sold it, he responded, "I had no idea that it was worth anything. It usually just piles up for a couple of days and then when it gets in the way I give it to the first guy who comes by once I've had enough of it." Similarly to Sigmon, scrappers will come in to Justin's auto shop two to three times a day asking for metal. And unlike Sigmon, Justin's scale of disvalue is so markedly low that he makes the objects alienable without requiring the scrapper to pay him any money. What becomes transparent in these two auto shops is that the value these owners ascribe to broken, metal car parts is slightly different. Sigmon understands that the scrap auto parts have exchange value and Justin does not have any knowledge that the parts are valuable. However, the owners of both auto repair facilities come to depend upon the scrappers to remove the waste and clear their auto repair shops of the metallic objects that come off of the cars they repair. Ultimately, both of these shop owners make their parts alienable through a scale of disvalue.

Max, an auto body repair shop owner also gives his metal away. He not only gives—'most'—of the metal away, but he also pays a specific scrapper to take certain metallic objects away from his facility. Max saves certain rare parts to expensive foreign cars, but for the most part the only other things he keeps are aluminum radiators that are picked up once a month by another

scrapper who only buys radiators. Max told me, "You know…you can basically tell by the smell in here…what we do in here is not exactly a green business. We produce a lot of toxic waste." He took me around to the back where vats of chemicals are stored in oil drums. "So when these guys come around here we just give them the stuff." Asked why, he responds: "You know it really has to do with aesthetics too. We do not really want all this shit lying around here. If you, or really your insurance company, are going to pay a couple thousand dollars to have your car fixed, you do not really want to see a messy garage with a bunch of shit lying around. You know, who wants to see that?" In this statement it becomes quite clear that Max's scale of disvalue for the metallic auto parts is based upon an aesthetic ideal that fits his business model.

I asked Max how frequently scrappers come by his business. And, like the other two auto repair shop owners, he responded that they come by a couple of times a day. Max states, "You know they come by all day. One guy (and he turns around to address two of his employees) how many times a day does that one guy come in here?" One of the lead auto body workers responds, "He comes by here like six or seven times a day." Max responds, "No shit." Rather ironically the scrapper they are talking about shows up and everyone laughs pointing at him. "You know sometimes I move the wrong part out there for them to pick up and then I go back ten minutes later and it's gone. I don't really know how often they come by, but in that case it was pretty damn quick." The auto body workers in the background are still laughing about the scrapper showing up and Max says to me, "Let me show you something." We walk around the facility to view what is referred to as a 'clip.' A clip is basically a quarter section of a car and can be either a front right clip, a rear right clip, a rear left clip, or a front left clip. Even though these clips weigh between eight hundred and a thousand pounds, which at its most is worth nearly $112.50

(given that during my fieldwork, a ton, 2000 pounds was selling for $225.00), the scrappers will not take them. Max cannot get rid of these clips easily, and he desires to get them out almost immediately because of the size of the material, and because they create an aesthetic problem for potential customers.

Next, we walk inside of the shop office and Max takes me to the Rolodex where he keeps business cards and phone numbers. He shows me the number for one of the scrappers. Max states, "This guy has a potentially great thing going with us; Although I can never get in touch with him. Here's what I do with him. I come to this Rolodex and give him a call. He never answers. But I leave a message and tell him that I have a quarter clip, and that I will pay him $25.00 dollars to take it out of my shop. He still hardly ever returns my messages." I asked him why? Max responds,

> The police out here, because of the rampant theft of automobiles during the 80s… during the 80s we could pick out whatever color part we wanted and it would be here that day…that was when cars were being stolen all over the place…now you have to wait days and the parts, if you can actually get them, are never the color you need. We have to take them into that room that I showed you earlier and sand them, prime them and then paint them the color we need to match the given vehicle. So the reason I can't get rid of these damn clips even though I am paying someone to take them and they are making that money and the money for scrapping them is because the guys who take the stuff are Latino and if the police pull them over, which they almost always do, a lot of them don't have cards [green cards] so they avoid the stuff.

In this statement Max is referring to two quite important aspects of Chicago's scrap metal economy. The first is the high number of undocumented Latinos present in the local scrap metal economy because scrapping metal is often the only way such subjects can earn money outside of the traditional employment structure. The second is the reference to criminality, which I mentioned earlier with respect to the scrappers at the scrap yard believing that I might be linked with the police or the media. There is a high prevalence of theft in the scrap metal economy related to stealing car parts, taking things out of people's backyards, and even removing copper wiring out of power generators, public lamp posts, and foreclosed homes (see New York Times 2008 ; Washington Post 2006)

Auto repair facility and auto body owners—like Sigmon, Justin, and Max—represent nodes in a scale of disvalue. They are the people on whom scrappers depend for procuring available, "unuseful" scrap. At the same time Sigmon, Justin, and Max achieve aesthetic ideals for their self-determined business models by making these objects alienable, either for free or at a low cost. These relationships that scrappers cultivate with business owners, allow scrappers to identify a fault line between their regime of value, which entails their knowledge that the metal is exchangeable at scrap yards, and these owners' regime of disvalue, which represent a "very low standard" in the exchange of the metal from the owner to the scrapper. Through the identification of this fault line, scrappers take possession of the object deemed waste, and move it forward in its social life. The forward movement of the metal, once in the scrapper's possession, is towards its reincarnation, or re-commodification, when it reaches the scale of exchange value at the scrap yard. Thus scrappers mediate the fault line between their regime of value and the regime of

disvalue. They are acting subjects driven by purposive action who are temporary caretakers and potential reincarnators of the metal objects that other subjects have made alienable.

Scrapping as a Tactic and Form of Labor

Scrappers must create opportunities and position themselves in spaces where metal either is or might become available in the fault line between their scale of value and other subjects' scale of disvalue. I discuss the scrapper positioning himself in this space of opportunity to procure metal and serve as a mediator of its value, or its reincarnative process, through de Certeau's concept of the tactic. Just as non-marginalized subjects use the resources around them—what de Certeau calls "strategies"—to access networks that allow them to move towards their personal scale of value, so to do the marginalized with whom material and economic resources are scarce.

In his text *The Practice of Everyday Life,* Michel de Certeau asserts that marginalized subjects are often not complacent with respect to their social and economic statuses. de Certeau sees marginalized subjects as innovative and as subjects who work to create opportunities in a "field" (social, political, structural space) in which they lack resources and "proper" networks to ascertain their personal values. de Certeau explores the difference between those with resources and those without resources through what he terms "strategy" and "tactic," respectively. Strategy is roughly a given space of practice occupied by those in position of power and linked to institutions. These subjects with economic resources—like Max, Sigmon, and Justin—rely upon what he calls "scientific rationality" (1984: xix)—a series of relationships and resources

that when deployed allow the subject to direct rational thought towards the achievement of goals or values. Conversely, tactics are available to those who live and work in conditions not closely aligned with power and capital, as is the case for scrappers with whom I worked. Michel de Certeau defines a tactic,

> …[A] calculus which cannot count on a "proper" (a spatial or institutional localization)….On the contrary, because it does not have a place, a tactic depends on time—it is always on the watch for opportunities that must be seized 'on the wing.' Whatever it wins, it does not keep. It must constantly manipulate events in order to turn them into 'opportunities.' The weak must continually turn to their own ends forces alien to them. (xix)

What scrappers lack with respect to a proper space they attempt to make up for by creating relationships with businesses and running the alleys in search of metal. The "calculus"—which I take to mean a method or means of calculating and reasoning—is the way that scrappers use rational thought to develop relationships with businesses that produce scrap metal and have a low "threshold" for making the metal alienable. Scrappers also rely on time to "seize opportunities on the wing" by positioning themselves in the alleys at particular times of the day and night. As de Certeau points out, this positioning places subjects like scrappers in a temporary space where what they win is not kept. This pattern of cultivating relationships with businesses and positioning oneself in the alleys at appropriate times is the pattern that scrappers must recreate day in and day out. Chicago's alleyways are public spaces in the sense that they are owned by the City of Chicago and made available to anyone who wishes to use them. This allows the space

of scrappers in the alleyways to be analyzed through de Certeau's concept of the tactic in two ways. Because scrappers can never own the alleyway space they must enter and exit it every day relying upon chance and positioning to secure metal. And, in doing so, because it is a public space, scrappers must contend with the competition of other scrappers. Thus the space of the alley can never become a "proper" space, one that guarantees results. Instead, as de Certeau alludes to, it depends upon time and the consistent creation and recreation of opportunities in spaces that are not "properly" their own.

What my informant Rick calls a 'hussle'[40] [hustle] is quite similar to de Certeau's concept of the tactic. de Certeau discusses the tactic as seizing opportunities on the wing and depending upon time to make up for a lack of "proper" space. The emphasis upon using time to create opportunities is something that my informant Rick has practiced since he was a boy through various hustles. Rick uses the term 'hussle' to describe specific activity or labor he engages in to produce money. Thus, husslin' is an action-based deployment of his skills and knowledge(s) to create opportunities to make money. Rick believes that scrapping metal is a form of hustling. He explains what he means by a 'hussle' through an example of Mexicans'[41] scrapping tactics: "What they are, they's better husslers.' That's what the Mexicans are man. What they are it seems like they just be better husslers. They's just more dedicated to it." I asked Rick more pointed questions about how he sees hustling:

M: So scrap metal collection is hustling?

[40] In the transcription of my interviews, I have attempted to keep Rick's language as phonetically accurate as possible. Rick speaks in black English and I have reproduced his speech as carefully as possible.
[41] Rick casually referred to anyone who speaks Spanish as Mexican. When I use the term Mexican it is based upon Rick's statements. I am aware that the groups of people to whom he is referring might better be classified as Latino.

R: Yeah. That's really all it is.

M: That's the game?

R: Yeah. Husslin.' Husslin.' Husslin.' Husslin is getting up early in the morning and how serious you is about it….The reason why I said the Mexican's are taking it over [the scrap metal economy] man. You know it seems like the Mexicans are more dedicated to it…You snooze you lose, you grin you win. If you can hussle you gotta get up man. If you can hussle you can't lay up on your ass. You can't make no money. You can't say well hey I'm gonna sit up and drink all damn night and say I'm gonna get up the next day. Yeah, yeah, yeah. When you gonna get up at like noon or 1 o'clock or some shit like that? The Mexicans will have done been and got it [the scrap metal]….they'll have already done been to the suburbs too.

As de Certeau outlined in his idea of the tactic being contingent upon time, so too does Rick emphasize the importance of time to husslin.' For alleyway scrappers such as Rick, the time that one enters the alleys is crucial to how much metal one can secure. On the days when Rick and I scrapped together, he insisted that we should be ready to enter the alleys no later than 6 AM. Scrappers agree, unanimously, that one should already be scrapping at first light. The rationale behind this is that you want to position yourself in the alleys to get the metal objects that have been left out by residents the night before or as they are taking the trash out before leaving to go to work. Even so, scrapping is highly erratic. Just because you position yourself in the alley at first light does no guarantee that you will collect a 'load' with a high exchange value.

I asked Rick if he could give me a better definition of how he saw hustling in relationship to the scrap metal economy. Because Rick has many hustles, of which scrapping is only one, it became

difficult to obtain a clear definition of hustling in relation to the scrap metal economy. Rick also helps people move, washes windows, and cleans and maintains a coffee shop and a liquor store. He exchanges his services for money, food or liquor. Because Rick, like many part-time scrappers, earns money through a number of different tactics, or hustles, his view of hustling in the scrap metal economy overlaps with his more general construction of hustling. Rick explains the nature of hustling:

> R: Husslin is just gettin' out and sayin to yourself well hey I know where I can make some money legally and not get locked up. I'm gonna go up here and wash these peoples windows. I'm gonna ask them do they want they windows washed, and if this one don't want his windows washed maybe the next one will, you know. So that's husslin legally.
>
> M: So workin' for these guys [the coffee shop or the liquor store] is not hustling?
>
> R: This is husslin' too. But also you can put it in another category. After you've been with them for so long you can put it in the category of working. Working for them. Because you got some kind of arrangement worked out.
>
> M: So hustling's not work or it is?
>
> R: No that's not what I'm sayin.' Husslin' is work. In order to hustle you got to move your ass man. You got to shake you's ass man. You gotta get out here and move around. You can't get stuck. If there ain't nothin' happenin' in this place you got to go to the next

place. If there ain't nothin happenin' down here, hey, move to the next spot. And if there aint' nothin' happenin' to the next spot…move to the next spot. If there ain't nothin happenin in that spot REROUTE! And go all the way again. It's just like pickin' up scrap goddammit. If there ain't nothin' happenin' in this alley go to the next one. You see what I'm sayin' and if there ain't nothin' happenin' in all of these alleys go to another neighborhood. You know try to learn the schedules of when the garbage man done been and picked up they garbages….The better the neighborhoods the better the merchandise (laughs hard). It's as simple as that, the better the neighborhoods the better the merchandise.

M: So husslin is work but its not formal work?

R: That's it. That's exactly right. It's not being on a payroll or nothing like that. No income tax or nothin' like that. It's all money or tax free really. I can be walking down the street during the first of the month or the fifteenth of the month, and I see the movin' truck. And I walk to them and say, 'Hey, can I help you move? I'm a strong guy. I'm experienced with moving heavy stuff' and they usually say, 'Yes, let's do this.' Husslin is a game man. And to know the game, to be good at the game, you got to study it, you got to practice it. From the moment you get up until the moment you go to sleep. You got to be good to the game.

M: So hustling's anything to make money?

R: No, no, no Matt! That's not it at all! Don't say *anything*. It's got to be legal. Hussles can be illegal too, but that ain't for me.

M: So it comes down to not being in jail?

R: That's exactly it, that's exactly why. Man I ain't cut out for the Chicago County jails or the state penitentiary. I'm an old man, 52 years old….what the fuck I'm going to prison for? I got a grandchild and a son that's 33 years old. I can't go to prison no more. That's not for me. I ain't goin' to prison no more, fuck that shit. [Rick uses a whiny voice to indicate the intonation of a prison employee] '*It's time for you to eat now. Alright get up. It's time for you to go bed now. Now you can take you a shower and wash your ass.'* Man, fuck that! I'm too old for that shit. I don't think nobody gonna mess with me if I go through theys garbage cans. I don't think nobody gonna mess with me if I pick up some scrap or a pillow that I might need, when I come through the alley. Or a chair or even some food. I don't think nobody might mess with me. I think they might say to theyselves, 'hey that man's a hussler' [Rick laughs really hard.]

In this dialogue it is clear that time and positioning oneself in the right space are important to Rick's hustles. But Rick also notes in this dialogue that there is an auto-didactic quality to hustling. It requires that one become self-educated in order to understand the scrap metal markets, and just like Omar showed me, to have knowledge of the metallic objects. Rick explained, "If you gonna be about this game [scrapping metal] you gotta study it and be up on it. Just like any game. Just like any fuckin' thing. Whether it's baseball or whatever, man, you gotta

study it. Readings a good thing (pauses) but you can't believe everything you read and everything you look at ain't always what it seems." This combination of reading and studying allows one to 'hustle' well or to create the opportunities necessary to hustle.

Rick claims that he has been 'husslin' since he was a boy. His hustles have switched over the years to follow, or mediate, different materials based upon different market trends. As a boy and teenager, Rick's hustles were to shine shoes, wash windows, and take back pop and milk bottles that he found in the trashcans in the alleys. Beginning in the late 1970s and early 1980s Rick's father gave his older brother the family's van. With the van, which allowed them to cover greater distances and to collect more materials, Rick explained that he and his brother shifted from their boyhood hussles to scrappin' or at that time he said it was called 'junkin' metal. Rick explains,

> R: Me and my brother we started off…he had a truck...well a van that my dad gave him and that's how we started. It was like a cargo van and uh…you know we would put stuff in there and other stuff we would put on top.
>
> M: You were saying that there were all kinds of stuff you would find in the alley?
>
> Rick: Stoves, refrid-er-ators, chairs, bicycles, that people wouldn't use no more, you know they had the wheels gone. We would take the frames or anything you know just put it in there. Uh we would get a load and uh drop it off at the yard.
>
> M: Where was that?

R: That was my dad's building that he owned at 68th and Western and uh we got smart you see. That's when we got smart. What we used to do…we used to just turn in the whole refrid-er-ators, but then my brother got smart and you know he taught me something. What we started to do was take the doors off the refrid-er-ators and taking the aluminum out of them. You see what I'm sayin'?

M: Stripping them down?

R: That's right and we would take the aluminum to one place and the metal to another…You know that's how we would make our money. You would get one price for the aluminum and one price for the metal. And uh sometimes when it would run late, the yards [scrap yards] would close so we would take the stuff back home and unload it and then we'd be goin' out and gettin' us another load. That's how we did it, over and over and over again.

Rick no longer scraps metal full time. Rick is the type of scrapper who works part-time and when the right opportunities to scrap present themselves, which is usually when he has no money or when the coffee shop and liquor store do not need his services. When Rick and I scrapped together, he made approximately 100 dollars a day which he 'banked' at the liquor store where he maintains an informal account, with the liquor store owner who agrees to hold onto Rick's cash. Rick uses the liquors store as an informal bank in two ways. By leaving the money with the liquor store owners, Rick was able to avoid the immediate temptation to spend the money on

"other commodities and shit like beer and cigarettes, those are real commodities too for people that are in to that kind of shit like I am." The second reason, while tied to the first and two-pronged, is that the use of the liquor store as an informal bank enables him to save enough money to live towards his dream of obtaining his own truck and subsequently using it to scrap full time; additionally, as he works there part time doing stocking and cleaning, it gives him a consistent reason to show up to this side job to earn more money as they are already holding his cash savings in hand.

Rick imagines obtaining the truck as a symbol of his freedom. Simultaneously, he sees scrapping metal as work and not work, as he alluded to with respect to working for the coffee shop. He believes that scrapping metal is a strenuous form of physical labor that requires one to use time efficiently and to 'show up,' what de Certeau would call identifying the 'calculus' that does not have 'proper' space. At the same time, obtaining the truck would permit Rick not to work. He sees the truck as a symbol of 'not work' in the sense that the truck, alliteratively, becomes the job itself. Thus as the owner of the truck, the work would be according to his own time schedule and would avoid someone "having their thumb in my back all day, watching what I do all day and tellin' me what to do all day."

When Rick started to 'work' regularly at the coffee shop and liquor store and began making money he ran the idea of getting a car by his brother, his former scrapping partner. Rick stated, "See man I told my brother I was gonna get a car, but then hes told me you don't want no car. You can't make no money outta a car. You needs a truck and then you can haul shit and move people and be scrappin' metal." Rick believed that through owning the truck he would not have

to work (cleaning windows at the coffee shop and scrapping on foot) : "If I had that truck (he points to a box van in a parking lot next to the coffee shop) I wouldn't have no damn job. That truck would be my job. That's it just as simple as that." For Rick, having a truck symbolizes freedom and the ability to be his own boss, something he claims for the most part he has always been: "I'm my own boss for the most part. I make mine own hours. That's what it means to be a hussler."

Making the Mine

Many of the scrappers with whom I spoke during my fieldwork embraced the mantra, "One man's trash is another man's treasure." In this statement there is a dichotomy created between trash and treasure, between disvalued objects and valued objects. For most, the metal objects in the back of scrappers' trucks and in their shopping carts would be classified as waste. Yet, scrappers rely upon the production of waste and other people's need to get rid of their waste to obtain scrap metal. I proceed by defining waste as any object that has intentionally been removed from a household or business and has been placed in or near a waste receptacle, or is verbally ascribed as waste by its current owner.[42] When I asked my informant Rick why he thought people threw away so many "good" things, he responded, "Matt, man, people do whatever makes they's lives easier. If that means throwing something away that still be good, then that's what theys do. If it means getting the refrid-er-ator out they damn house then they do it. Peoples do what makes things easier on theyselves."

[42] Legally, at the moment that an object is placed in a dumpster or trash can, that does not rest on someone's property but is in an alleyway or on a public street, the property owner no longer has rights to the contents of the waste receptacle[42] (Strasser 1999: 7; Rathje & Murphy 2001: 23). However, the states of California and New York are currently in litigation disputes over who owns waste (see USA Today 2008)

What Rick refers to as "making they's lives easier" could be seen as a way that people establish personal systems of order over objects, or what I term the *householder's scale of value*. In the scope of this ethnography, what becomes interesting is how people establish systems of order with specific respect to waste. Mary Douglass argues, through a discussion primarily focused on the binaries of cleanliness (purity) and dirtiness (impurity), the need of individuals to add structured categories to their lives to accommodate dirt and to remove it. Douglass believes that the cataloguing and jettisoning of waste instills an individual's life with a sense of order, in addition to sorting out what is no longer good and thus compartmentalizing objects into categories of purity and impurity. With respect to what I refer to as waste, or the above ground mine, Douglass discusses what she calls rubbish. She writes, "So long as identity is absent, rubbish is not dangerous [impure]. It does not even create ambiguous perceptions since it clearly belongs in a defined place, a rubbish heap of one kind or another" (1966/1992: 199). If we understand waste as an impure object, then what might be said of scrappers who work in close proximity to impure elements? More specifically, what might be said of the people, including scrappers, for whom their existence relies upon appropriating, revaluing (thus reordering and re-*scaling*), and exchanging the "impure" objects others consider to be waste?

To address these questions, it becomes helpful to think through the ways in which people are groomed to think about purity and impurity with respect to waste. Through a close reading of Michel Foucault's *Discipline and Punish*, Martin O'Brien argues that behind the moral[43] and

[43] The literature on waste is composed of two dichotomous camps. The moral camp (Strasser 1999; Royte 2005; Ferrell 2006; Pellow 1999; Zimring 2005) argues that waste production and its subsequent crises are the result of conspicuous consumption; on the other hand, the more empirical camp is arguing to look at waste on scales that prove that waste production is not any more prominent or more or less a crises than it has ever been (Rathje and

material smokescreen of waste lies a much larger project of governmentality. O'Brien writes of the 'grooming' of citizens to be 'moral' recipients of a larger message on waste: "Yet his [Foucault's] assessment strikes a disturbing chord and urges me to the suspicion that behind or alongside the war on waste another social and political process transpires – virtually without comment – that is aimed at producing, regulating and circulating waste throughout the same social body" (2008: 4). While *many* subjects within the American body politic might be groomed to "produce, regulate, and circulate" waste in a certain way, as O'Brien suggests, and we understand from closely reading Foucault's later texts, this grooming cannot apply to all subjects in an even and thorough way. This would suggest that, for most citizens in the American body politic, the ordering of waste requires them to act by removing waste from their households and subsequently putting it in waste receptacles in urban areas, and possibly burning it or taking the waste to a dump in rural areas. As I referred to above, through Mary Douglas (1966), this rids an individual's household of impure elements and dirt thus ridding impurity and adding order. Further, through municipal and state laws, individuals are required to process their waste which emphasizes O'Brien's point about how governmentality operates.[44] However, I believe that O'Brien misses a moment of critique with respect to how subjects can never be groomed evenly, even through a Foucauldian model of governmentality. As O'Brien argues, waste and the

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Murphy 2001; Thompson 1979). The use of the term conspicuous consumption, has been used incorrectly in its pedestrian sense by these authors meaning merely to consume. Thorstein Veblen meant something more specific by the term in his text *Conspicuous Consumption* (2006). Veblen uses the term to refer to the consumption habits and hobbies of the leisure class, ie. upper class, who consume for the purposes of class based-privileges and position takings within their social class.

[44] Foucault's concept of governmentality implies that subjects are produced by the state (the holder of power) to appropriate, internalize and enact certain knowledges that have been directed towards them by the government. Foucault writes that subjects are created through "technologies of power, which determine the conduct of individuals and submit them to certain ends of domination" (1988: 18). If I read O'Brien correctly, this is the use of the term governmentality from which he proceeds in making his argument about subjects circulating waste in a particular way.

removal of waste might be an everyday process and valuation, a site where governmentality has worked its way into a subject's actions, for the sector of the body politic with adequate means.[45]

Yet, for marginalized subjects, their interpretations of waste can be sites of contestations and confrontations of their socio-economic standing, their needs and their personal scales of value. It can very easily be one of the ways, if not the only way, that poor people can attain the material objects they need for their lives, or the material objects that they can sell and exchange for the material things they need. As my informants Rick and Scott both pointed out, the tactic of scrapping does not only offer them money, but it also offers them food, alcohol, and household goods. Waste politics might not only be a form of governmentality, but also—in borrowing a phrase from Homi Bhabha—the site for "a complex act of translation" (1994: 256) that radically shifts conventional approaches and meanings of a class-based, taken-for-granted lexicon of waste and value when we thoughtfully and thoroughly consider the marginalized (gendered and racially-marked) population who sorts this materiality and mines it for resources.

The 'type' of marginalized subject who handles waste to make money is not a new figure on the American economic, political, social or historical landscape. The scrapper is merely a new instantiation of a subject who handles waste. The scrapper has a genealogy dating back to the earliest days of colonial enterprise and economic activity (Strasser 1999; Zimring 2005). I believe that using a genealogical approach affords a lens through which to see how marginalized subjects in the American economic landscape have a historical trajectory that places them in a long line of subjects who re-order waste out of necessity. In short, the scrapper has developed

[45] David Pellow argues that the production of waste is the closest thing to a universal across the experiences of all living things (2002:1; see also Rathje and Murphy 2001: 45).

from earlier types—the Jewish peddler, scavengers, junkmen, trash-pickers, dumpster-divers, mongers, bone collectors and "alleyway entrepreneurs" (Pellow 1999: 109-122)—to this new instantiation. Or, as Susan Strasser writes with relationship to cities and scavengers, "Scavengers, especially the poorest immigrant women and children, combed city dumps according to well understood rules…Like the urban poor everywhere, indigent people in American cities had foraged for food, fuel, and marketable *scraps* [my emphasis] as long as there had been cities" (1999: 115).

These 'indigent' figures have a traceable historical trajectory that positions marginalized figures in the American economic landscape, sifting through sorting (thus imposing rationality in a field of economic struggles) and using 'local knowledges' of objects, the availability of markets and spaces of resource procurment. Strasser's socio-historical text shows how materiality changed with market demands and consumption trends in which the same marginalized groups of people—namely women, children, immigrants, and the poor—changed the materiality they collected from metal to rags to wax depending upon the various object's market values during different time periods (115). What Strasser captures in her text is remarkably similar to the pattern that my informant Rick noted with respect to how his hustles shifted to different materials as the market demanded these materials.

Shaping a Market & Selling the Mine

After a day of scrapping, scrappers must determine to which scrap yard they will sell their metal. In one of my conversations with Rick, he told me, "You always sell your scrap to the

yard where there be a whole fuckin' line of trucks. That means those fuckers [the scrap yard] be honest. They be payin' what they supposed to and they damn scales aren't rigged. Because those fuckers will cheat you. They will cheat the shit out of you."[46] For over three weeks, I observed and wrote fieldnotes at a scrap yard such as Rick described. This one had a long queue of trucks, vans and cars throughout the day. The queue to the yard begins well before six o'clock in the morning when the most dedicated full-time scrappers and the scrappers who have worked all night begin lining up. This particular yard, located in South Chicago, is called Chicago Iron and Metal Works.[47]

I spent the first three weeks of my fieldwork observing at Chicago Iron and Metal Works at various points in the day, every day of the week, including Saturday, which is an incredibly busy day because the yard is closed on Sunday. The Chicago Iron and Metal Works facility is owned by two brothers who are experienced metal dealers. For the past 25 years, they have been running scrap purchasing, processing and sales facilities in Ohio and Florida. Their current operation in South Chicago has been open for approximately 18 months. Over these years the two brothers have refined the scale of their operations. Their current business model aims to handle, market, and move the metal they buy from 'peddlers' [scrappers] as quickly as possible with the least amount of labor or time spent processing the metal. They depend upon the peddler who makes runs to bring in the largest amounts of scrap to their yard. As Jonathan Morietti, one of the two brothers who own Chicago Iron and Metal Works, stated, "We depend on the

[46] This was a point that Rick emphatically made and repeated two times during one of our interviews. He moved his face approximately six inches away from the microphone on my iPod and told me, "Make sure you get that one down in your fuckin' notes." Over the years scrapping full time with his brother, Rick felt that they had been ripped off a number of times and that there were "real honest and real dishonest yards…fuckin' thieves' to whom they sold their metal. What he means by the 'rigged scales' are that the owners of the scrap yard have the ability to mechanically set the scales to weigh lower than the actual weight of the metal.

[47] At the owner's request, this is a pseudonym for the actual yard as will be the names of the employees and owners of this yard.

peddlers. They might not always bring in the heaviest loads, but they are the bread and butter of this operation. Some of these guys come in here, two maybe three times a day, and we appreciate their business. We need them as much as anyone else….if not more." In my observations at Morietti's scrap yard, I noted that there were more 'peddlers' than any other type of scrapper; yet they are not the sole backbone of the operation. There were also much larger players who bring in much heavier loads such as public utility companies, appliance delivery companies, and even contractors who do work for the City of Chicago.

Morietti's scrap yard combines high-tech machinery created specifically for scrap yards with manual Latino labor to purchase, process and resell the metal he buys from scrappers. The scrap yard covers an entire city block and a ten-foot tall fence, fittingly constructed of iron, encloses the yard and buildings on the premises.[48] Morietti's scrap yard uses a computer program called Scrap Dragon which comes with a set of surveillance cameras,[49] a kiosk linking the scales and scrapper's profiles to a database, and an ATM machine. After the scrappers 'load' has been weighed, they receive the card and use it at the ATM machine where they receive a cash payment for the metal. The Latino—predominantly Mexcian—labor source employed by Morietti run the kiosk, the balers, the heavy machinery—including forklifts and excavators—and

[48] This design of the iron fence around the facility is meant to keep metal thieves, or scrappers who scrap illegally, from stealing from the yard. The theft of scrap metal form scrap yards is a national problem, and one that the owner's of Chicago Iron and Metal Works contend with on a consistent basis.

[49] This surveillance system, which comes with the Scrap Dragon 'kit,' allows the scrap yard to achieve a panopticonal view of the scrappers' activities while on the lot in addition to taking pictures of their actual loads. On the one hand, as Foucault uses the term—through an extrapolation of Jeremy Bentham's design of the prison—is that the panopticon is a spatial point from which the prison administrators view the prisoners' behaviors. The prisoner's have knowledge of the panopticon, and Foucault argues that it is this knowledge of being watched that allows prisoners to self-regulate their behavior (1979: 200; see also Foucault 1972: 146-65). The panopticonal view granted through Scrap Dragon to the scrap yard owners certainly allows scrappers and thieves to self-regulate their behavior. However, more importantly, the video surveillance monitoring system at Chicago Iron and Metal Works is used by the owners to compile a database of photographic images that clears them from any liability if they were to purchase stolen scrap metal. In general, the use of photographic surveillance is a practice that most, but not all, scrap yards follow.

the surveillance systems of the yard. Morietti gives these employees two weeks a year of vacation for working five 12 hour shifts and one 6 hour shift per week. Yet Morietti states, "They almost never take any days off. We work hard here, but we also take really good care of the empolyees just as we do the scrappers. I think these guys [his eight person Latino crew] have something to prove. They come here [to the United States] with nothing and work is all they know. Some of these guys have families back in Mexico, and the money they make here goes back to them."

While the employees of Chicago Iron and Metal Works are well cared for according to Morietti, so are the scrappers. According to numerous informants, Morietti pays competitively, if not the highest prices of all the scrap yards in Chicago. According to my informant Cory—a remodeller and mortgage broker who scraps metal obtained through the rehab projects of buildings where he is the foreman—Chicago Iron and Metal Works is a tightly run business: "These guys run a tight business. You've been here and seen it. These motherfuckers could run this thing twenty-four hours a day if they wanted to. There's always a line and there's rules and shit in here. Time is important to them and it is to me too. I've got to sell my shit, make money, move on with it and so do they." Morietti also takes care of his scrappers by offering anyone who sells metal to him a 'free' meal. Once a scrapper obtains a ticket and ATM card the ticket can be shown to Art, the independently contracted food vendor. Art gives every scrapper with a ticket a bottle of water and either a hot dog, cheeseburger, or chicken sandwich depending upon which day of the week it is. The 'free' food and water given to scrappers by Art is not actually free. This meal generally resembles Marcel Mauss's outline of gift exchange in his text *The Gift*. Mauss argues that in gift exchange there is an expectation that in giving a gift the giver expects some form of reciprocity

(1990: 3). The same holds true for scrappers in their relationships with Morietti's scrap yard and Rick's use of the liquors store as a bank or Max's hope that his relationship with the Latino scrapper will rid his shop of the unpleasing metallic discards of auto body repair. Relationships within the scrap metal economy, subtend, just as gift exchange does, the potential for further relations, or relations upon relations, into the future that will serve mutually, financially beneficial for all parties involved. In the instance of the food at Morietti's scrap yard, the food that Morietti gives to the scrappers is a gift given with the hope of returning to the yard to sell more scrap metal. Morietti states, "We try to take really good care of these guys. That's what the water and food are for. This is a really competitive business and they could go to a lot of places to sell their metal. We want them to keep coming back here. It costs me a little bit to give them the food and water, but I'm trying to develop some loyalty from them. I know most of these guys by their first name and that goes a long way too. This business is all about relationships." Through my observations, Morietti does actually take the time to learn the scrappers' names, and in doing so he courts their business.

Morietti's business model closely follows Cory's emphasis upon time, efficiency and movement. Morietti explained to me that over the years they have handled all aspects of the sale and processing of metal, including on-site refinement. The model he and his brother follow at their eighteen-month old Chicago scrap yard is to handle and process the metal in the least amount of time and with the smallest expenditure of labor power from his crew as is possible. Morietti's team sorts the non-ferrous metals (copper, brass, aluminum) and puts them in large cardboard boxes on wooden shipping crates. The aluminum cans go into 8-foot by 20-foot 'hoppers,' which are basically steel dumpsters that go on a flatbed, eighteen-wheeled truck. These metals and

others are then picked up by purchasers several times a week. The scrap metal in the yard, which is commonly referred to as pig iron, usually stands in a 30-foot high by 150-foot long pile. Just on the edge of this pile is an excavator—a heavy piece of machinery that has a large steel claw on it. The operator of the excavator sits in it all day, pinching huge piles of metal objects (refrigerators, stoves, bikes, bookshelves, awnings etc.) out of the pile and dropping them directly into hoppers that remain on eighteen-wheel trucks. The process with the excavator continues all day long, and thus the metal moves in and out of Morietti's yard at the same constant rate that it comes in.

Morietti's scrap yard is an important part of the commodity circuit through which scrap metal travels. Scrap yards such as Morietti's represent the entrance of metal in its phases of reincarnation from dead commodity back to full commodity form. When a scrapper sells the scrap metal they have collected to Morietti for cash, the scrap metal shifts from a mere metallic object possessed by scrappers to a commodity form that is exchangeable for money. The social life of the new commodity, scrap metal, is then placed in a position to be exchanged again to the next subject, or purchaser, in the commodity circuit. This sequence of vertical movements of the scrap metal places the metal in the hands of larger actors such as Metal Management, a Chicago-based, metal 'recycling' company that processes and refines the metals and then sells the metals domestically or internationally.

After my observations at the scrap yard, a market where metal is purchased for money, I question the scrappers' self-ascriptions of their independence from more formal systems and structured work. I believe that the scrappers with whom I worked really do feel a sense of agency and pride

in the work that they do. They believe that they are evading and contesting the 'system' that has made 'formal' work difficult if not impossible for them. They see themselves as self-employed, or entrepreneurs who are their own bosses. However, I believe that scrappers ultimately are day laborers, or what I term "un-contracted contract workers," for scrap yard owners such as Morietti. What I mean by the term uncontracted contract worker is that scrappers do not have a formal contract with scrap yards: steady work hours, a constant pay rate, and taxable income. Rather Morietti's scrap yard offers them a free-standing, open-ended contract that they can activate at will. More specifically, the un-contracted part of their work means that scrappers can keep whatever hours they wish to keep and thus remain their own bosses. However, ultimately, the scrappers have to engage the open-ended contract. The open-ended contract, given to scrappers by scrap yards such as Morietti's, states that in order for you the scrapper to earn money you must collect and 'haul' a measureable amount of scrap metal to my yard. I will then weigh the scrap according to each type you bring me, and the wages I pay you will be based upon the current prices I receive from the ISRI. It is only in the moment that the scrappers agree to this contract that they are enabled pay for their time, labor and scrap.

The metal that the scrapper sells to Morietti through this contract symbollically represents his labor. I believe the scrapper's labor is embedded in the scrap metal that they have collected and then exchanged with Morietti. At the moment that they exchange the metal objects with Morietti, for money, the scrap metal is now not only a commodity form, but it is also the sale of the scrapper's labor through the medium of the metallic object. Ultimately men like Morietti "employ" the scrappers. On some level, it might also be argued that businessmen such as Morietti are not really the only employers of scrappers. The scrap metal economy is an

international market, and the scrapper and Morietti are simply the base-level agents. They are the base-level agents in a series of exchanges and money transactions that are conditioned by the economic patterns of a global commodities market. The real employers of scrappers might be even more nebulous. I suggest that even above scrap purchasers like Morietti, the employer of scrappers is really the market itself. Morietti only represents a scale and human face for a market that is rather abstract.

When I went back out to the scrap yard at the end of September 2008, I had not visited the site in over a month. Between August 15th and September 1st the price of scrap metal by the ton had dropped from $225.00 dollars to $120.00 dollars a ton (roughly 2,000 pounds). And by November 1st the price had dropped to only $60.00 per ton—a price drop in 10 weeks of 375%. When I asked Morietti why this happened, he responded, "Real simple. China's not buying." He paused and continued, "But this doesn't affect us. It's actually good. What we do sell is still nearly the same price just not at the same volume. The price will spike back up in the winter for the scrappers." Conversely, for the laborer—the scrapper—a lot of money is being lost. When I spoke with a woman who scraps with her male partner out of a teal green Ford Thunderbird, she remarked, "What we were making in two to three hours, 80-90 bucks, is now 40 bucks. It's really, really bad out here right now." The differences in the outlooks on the price fluctuation of metals emphasizes the different positions that scrappers occupy, tactically, and those that Morietti occupies, strategically.

This conversation with the woman in the Thunderbird happened as I was leaving the yard. As I drove home, I thought of how much had changed for the scrappers since I had last worked with

them. My thoughts drifted to a particular evening in early July when Morietti and I stood on the loading dock of his warehouse and observed the pile of scrap metal in the center of the yard. In it you could see the bicycles, washing machines, old water heaters, radiators, and almost any object you could imagine that is made of metal. At this point I had already scrapped metal myself to trade with Omar and with some of my informants. I had a rough idea of how much metal was out there and how many hundreds of scrappers it would take working full time to create a pile of scrap metal that large. I knew too that this pile was purchased by Morietti for tens if not hundreds of thousands of dollars. I broke out of my musings over the pile of metal and the scrappers labor and the amount of money that it cost to purchase all of that metal when Morietti said, "See that," as he pointed to the pile that I was looking at. I laughed and responded, “Yes,” thinking to myself that the pile would be hard to miss. Morietti continued, "All of that out there. Those are dollars and as soon as those dollars leave here I get more dollars. This is really very simple. I want that stuff to come in here and to go out of here as quickly as it possibly can." What was possible and simple with respect to moving these piles of dollars in July is still the same process for Morietti in September. He claims that the market drop of scrap value is not affecting his business at all. He said that it is even better for him because what he is able to sell to other scrap handlers is still at the same price it was earlier in the summer. However, for scrappers the drop in the market prices of scrap metal is making being their own bosses a more difficult form of labor. The reality for many scrappers is not nearly as simple as it appeared to them in the conversations that we had during the summer.

In Chicago’s scrap metal economy, alleyway scrappers are some of the first people to touch, handle, and exchange scrap metal in its social life. Alleyway scrappers’ social and economic

marginality, coupled with the importance of their labor—rising out of necessity—allows this highly-recyclable object, scrap metal, to reach its other thresholds of exchangeability and into other regimes and scales of value. When scrap metal moves from the alleyway, as mediated by the scrapper, to the scrap yard's scales it has crossed through three scales of value: disvalue, potential value, and market value. Throughout the duration of my fieldwork, I kept in the back of my mind the difference between the ISRI's literature which represents itself as the governing body of global *recyclers*—a green industry saving the world as it has for over a century—and the negligible use of the word in everyday conversations I had with scrap yard owners and scrappers.

As they roll through the contours of Chicago's alleyway infrastructure—an intentionally-designed fireblock to prevent the devastation of the great fire of the late 1800's from turning Chicago again to ash—it is the labor of the scrapper and his reliance on chance, and relationships, the iterative hope of continued relations of relations to collect and sell scrap, that gives the above ground mine its shape and contour and possibilities. As men who identify the materiality of the mine in third nature—civilizational excess, detritus, and end-of-life objects—scrappers do silent, unintended environmental work. While emblazoned by pride and entrepreneurship, scrappers' diversions of objects from the waste stream is the earth-saving, and even earth moving, labor and unintended activism. Pound by pound and load by load, Chicago's scrappers *tunnel* through alleyways, *dig* into recycling bins and *pick* through trash bins. They are urban miners in an urban mine—a mine that does not require entering the earth to obtain materials. The head lamp guiding them through the mine is self-interested and monetarily motivated, yet the diversion of the mines' materiality from the traditional waste-stream moves against mixing this third nature back into first nature, the earth.

Chapter 3:

Air and Water:

Generating Revenue & Making Shipping and Transport Green at the Port of Los Angeles

"There is no sustainability as far as any human, economic endeavor. We're polluters here and we recognize that. All you can do is work towards minimizing the damage that you do. You'll never be sustainable."

-Yvon Chouinard[i]

It is early September. The dry, sweltering, melt-your-skin heat of the fall Santa Ana's pushes from the Pacific Ocean into the California mainland in the hollow of San Pedro Bay. As I approach the main offices of the Port of Los Angeles, before passing through the airport-style surveillance walk-through and guards at the main offices,[50] I have broken a sweat on this blistering September day in San Pedro. I smiled and made small talk with security guard who remembered me from my summer internship[51] the year before. San Pedro is the town that houses

[50] Ports, including air*ports*, are sites of priviliged access. Ports are strategic sites of commerce and the entrance point for *foreign* objects of trade and those subjects that trade them; thus necessitating military presence, full-fledge police forces and fire departments; as well as an already on hand set of Navy Seals who can dive and surveil the mirky waters of the ports canals into the Pacific Ocean. According to maritime law, foreign vessels cannot be captained by foreign subjects upon arrival at United States' port complexes. Accordingly, a US captain is brought to the edge of the incoming ship by a police tugboat; crew members of the foreign vessel throw down a rope ladder onto which the US captain climbs the length on rope knotted to wood before boarding the ship to guide it to safe harbor. This feat is actually treacherous and unnerving even to watch. The ships can only slow down to approximately 8 nautical miles an hour and time is of import, during this climbing act, as there is fixed amount of time to board the ship, take over the captain' quarters and safely dock the vessel.

[51] My internship at the Port of Los Angeles consisted of three months—June through August 2013—of data research on country profiles for developing new markets for business with the Port. What "new markets" means is targeting entire countries based upon their GDP, information derived from the IMF and World Bank; what most academics see as neo-liberal organizations that help to tear asunder the ethnic and cultural compositions of nations by infusing global capital into development projects—the victims usually being the most vulnerable and politically and spatially weak subjects in the developing world. We used this data without any hesitation nor discussion about the controversial politics surrounding the operations of the World Bank nor the IMF. I learned that the work and reading I had done for over a decade in anthropology was a separate body of knowledge; a body of knowledge that is at once made possible by the privileged space I have occupied inside academia itself and at the same time having a more ethical leaning when it came to considering the target populations of such data.

In addition to courting businesses for trade missions, part of the role that the business development office serves is to take important guests on "port tours." Two boats exist for this purpose. The first is owned by the Port of Los Angeles and is a relatively humble open-air skiff. The second boat is leased from a local captain for the tours and is a vintage boat with extensive dark-grained woodwork and a bar. The latter boat is rented by the Business Development Division for the purposes of making hospitality and comfort a priority for distinguished visitors. I jumped at every chance I was afforded to go on the tours, lead by Chris. Prior to working on the internship, I was able to take three port tours of the Port of Long Beach. Similar to the way that camping is now reserved around the country, or concert tickets are purchased—on the first Monday of the month at 8AM desiring port goers can get into a lottery on the Port of Long Beach's website to take the Port tour. Much like camping or getting tickets to a concert, they are very hard to attain. We took local businessmen such as the outfit of clean tech LA on our harbor boat. However, when a prince from the Middle East called to get a port tour, we rented the vintage boat and spent more time than usual on the boat. His goals of visiting the Port were to gain an understanding of the complexity of building a port. He owned a substantial amount of land and while my fellow interns and I touted the Port's green initiatives and advancements, he looked me in the eyes and stated, "That is very good. I, however, have no environmental regulations and can do as I see fit with my property." This statement bares in on the core of the current policy debates about environmental regulation that press on nations in the West and thwart business development—even discussions and tensions that plagues the Port itself—about the privilege of developing world nations, and nations with lax regulation, being enabled to move forward with construction and development without the hindrances of environmental sensitivity. This privilege, of relative neglect for the environment and labor, is a

the Port of Los Angeles. Across two bridges, just to the south, in Long Beach, is the Port of Los Angeles's competitor and sister-port complex, The Port of Long Beach. Taken together as a *complex* the two ports compose the 5th busiest seaport complex in the world. I learned on the first day of my internship with the Port of LA that its primary role is that of an acting landlord. The Port generates revenue by renting out terminals—large blocks of concrete with derricks that enable ships to load and unload containerized cargo. Additionally, the port receives a small fee—just over $1—for each container that is moved into or removed from the premises.

Ports throughout the United States serve as nodes in long logistic chains for bringing American scrap to foreign purchasers. Scrap is of primary import to this examination of the Port of Los Angeles because it is one of the main commodities to leave American soil. America's largest export in trade with China is two post-consumptive commodities: waste paper and scrap metal. Each month the port of Los Angeles sends out—on average—between 200 to 300,000 empty TEUs. There is an oft-sited joke that the Port's number one export is air—the only thing filling the Twenty Foot Equivalent Units (TEUs)—the large metal boxes that we often see in daily life on the back of 18-wheelers or on trains—that are bound across the Pacific Ocean. The trade in post-consumptive and post-industrial waste turned commodity serves as one of the strongest exports to leave San Pedro. In examining the Port of Los Angeles's export data, the top commodities to leave the 8th largest economy in the world—the City of Los Angeles—are scrap metal and waste paper. These commodities—largely on their way to China for waste paper

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major tenet of the how and why scrap metal is not processed in the United States. I discuss both regulation and environmental standards as they relate to India in the final two chapters.

processing[52] and China and Turkey and India for scrap metals—are representative of the changing metrics in import / export relations between the United States and the rest of the world.

While the global scrap metal economy is a largely hidden and value-laden trade that has represented itself as a "green" industry for nearly a century, long before the linking of this term to business became chic, conscious or a mandate of the Corporate Social Responsibility (CSR) discourse, so too has the movement of goods transnationally been of little relevance to consumers so long as their desired commodities are available on store shelves. In other words, the logistics chains and shipping processes that enable the shelves of Targets and Nordstroms and Wal-Marts to be packed with consumable commodities is a space of little value or attention to end consumers. While environmental sustainability and social responsibility measures have rhetorically been grafted onto economic activity (Jenkins 2004: 27-28; Kirsch 2014), sites and industries that funnel commodities in general, and scrap metals in particular, around the country and world—by truck, train, and ship—have come under intense legal and public examination over the deleterious effects of their industries upon the environment, wildlife and human health.

This chapter examines how legal action taken against the Port of Los Angeles by surrounding towns and the State of California shaped the Port of Los Angeles into a very particular type of subject—one whom became a steward of air and water protection—and in its new subject position demanded greener practices from shipping lines and technologies for transport. At the same time that I examine the Port as a green steward, I also examine a terminal tenant, SA

[52] Although, beginning in the late spring / early summer of 2018 China flexed its muscles at Trump's start of a trade war stating that they would no longer be taking waste paper from the United States. The Chinese government's decision to thwart the export of recyclable paper created a backlog of recyclables, largely in Pacific Northwest, that, to the chagrin of the municipal recyclers, would be buried in landfills.

Recycling, who ships scrap out of two strategic locations at the Port of Los Angeles and Long Beach. By implementing—then and still now—radical and progressive demands on shipping companies, the trucking industry, and by mandating that ships use alternative power forms while unloading cargo at the berths, the Port of Los Angeles is touted as a model environmental steward in the shipping and trucking industries. However, I show how the Port of Los Angeles was crafted through jurisprudence, legislation, and community action into a very particular type of environmental subject—one who was mandated to care for the air and water. Caring for the qualities of air and water—and the human and wildlife populations than need their cleanliness to survive in healthy environments—cast a shadow over the Port's operations as what many think is merely a shipping business. In the conclusion of this chapter, I turn to SA Recycling—a daughter company of Australian-based Sims Metal Management—to examine how the Port's policies regarding clean air and water impact the movement of scrap metal at its sites in Long Beach and Los Angeles—a strategic investment and allocation of resources leasing terminal space at two port complexes to ensure a stranglehold on the distribution of scrap from the West Coast to Asian markets

Site, Earth Movement and Logistics

Ports are entrances and exits to nation states, or gateways into the land. Bodies of goods and people move into seaports via container ships. As entrance and exit points for nations, ports serve as "nodes" in commodity chains. The Port of Los Angeles is erected on some of the most valuable coastal property in the world. It is owned by the State of California; controlled by the city of Los Angeles; therein making every employee of the port complex a civil servant of City

of Los Angeles. The Port of Los Angeles is one of three stand-alone departments in Los Angeles—it generates enough revenue to not lean on the city for funding; other two being water and power.

Jim MacLellan, Director of Trade at Port of Los Angeles, speaks in a soft, even pitch which belies the passion and expertise he holds on international containerized trade. Like an academic historian, MacLellan tells stories that weave from the 1590s to current issues facing the Port all the while touching back to events in the 1840s that shaped the Port's development before leaping to current issues plaguing trade between Los Angeles and China before covering other decades in the 19th century that positioned the Port of Los Angeles in its current physical position on the shores of the San Pedro Bay. According to MacLellan, there was a bidding war between Santa Monica and San Pedro to house the Port of Los Angeles. San Pedro, the champion of the dual, won out due to the contours of the natural environment: the waters in San Pedro Bay were calmer than in the Santa Monica Bay and the weather pattern gentler with less rain. San Pedro's natural environment was ruthlessly transformed by mining the Western side of Catalina Island for rocks to construct the breakwater that surrounds the Port of Los Angeles, tempering the tides and waves from inhibiting smooth passage of the cargo ships from safely being piloted and docked. Much like Cronon's analysis of the transformation of Chicago that I explored in the prior chapter, the Port was designed, contoured and built in its specific location from natural and manmade resources creating an intricate web of first and second nature and therein making possible the growth of the Port and commerce and posing, what in time, would be grave dangers to the health of the environment (water and air quality) and the human health (air) of the surrounding populations in San Pedro and Torrance just to the Northeast of the Port.

The Port of Los Angeles—through a land grant from the State of California in 1908 was constructed on some of the most valuable coastal property in the world. It is owned by the State of California; controlled by the City of Los Angeles; therein making every employee of the port complex a civil servant of City of Los Angeles. The Port of Los Angeles—referred to as the Harbor Department—is one of three stand alone departments in Los Angeles—it generates enough revenue not to lean on the city for funding; other two being water and power. However self-sustaining monetarily the Port is not able—either environmentally or fiscally—to focus exclusively on business and the revenues generated from the port must be reinvested in specific allocated spaces. Marcel Van Dijk explains:

> In 1908 the right to operate the Port and generate revenues go to the local municipality [City of Los Angeles] while that money must be reinvested into the port: Maintain navigation, deeper drafts, so the ships can go through; no debris in the channel; to maintain the fishing industry; create cargo terminals for water born commerce; recreation: parks, landscapes, and other recreation activity—all of which must happen within the confinement of the port.

This multi-faceted set of requirements within the Port's Charter has created a tremendous amount of tension not only within departments of the Port—specifically the environmental and business development divisions—but it also begs questions and grievances around things as sundry as the development of a bocce ball court in a local park where the ruling was that the space of the park *could* be used for bocce ball, however it was not to be *constructed for* bocce ball specifically. The crux of the tension rests at the heart of conducting business and increasing

revenue and profit in today's climate that demands narration of the care for the environment and production of commodities in, ideally, the least destructive ways.[53] Marcel Van Dijk, a former Dutch businessman turned Port Director in Business Development, sees his role in the Ports Business Development office as a real estate developer who services clients: "I see this more as an industrial real estate company where you provide logistics. We provide the land and everyone else that we do business with, like the tenants, they provide a service to meet the cargo. In my view we're an industrial real estate company. We provide the land. We build the land and then we lease it out for four years to a terminal operator who will do the logistics."

What Van Dijk refers to as logistics is the veil that hides the circulation of commodities and makes commodities, that we easily procure through Amazon or at box stores, seem as if they are merely *ready to hand*. In her recent work, *The Deadly Life of Logistics* (2014), Deborah Cowen traces the rise of logistics as an academic discipline, on-the ground practice in goods movement, and a physically and metaphorically violent set of practices that borrows its primary operating model from the military. Cowen writes, " The entire network of infrastructures, technologies,

[53] This multi-faceted set of requirements within the Port's Charter has created a tremendous amount of tension not only within departments of the Port—specifically the environmental and business development divisions—but it also begs questions and grievances around things as sundry as the development of a bocce ball court in a local park where the ruling was that the space of the park *could* be used for bocce ball, however it was not to be *constructed for* bocce ball specifically. Additionally, prime, marketable real estate space for terminal renters—shipping companies—is being occupied by a US Naval Warship. While important to those who served in the Navy as a material semblance of the history of US maritime parties involved in the Port see this use of space as a hindrance to more important allocations of land and potential commerce. Stephen Cheung speaks to the complexity of the Port: "The port is complex and there is never one decision that is made easily. Give and take and compromise and move forward in a positive direction. Recreation [bocce ball in parks] is a passive service. It does not generate revenue. If you ask the city for revenue, like parks and recreation, then you are no longer a proprietary department. I have no envy for port directors. They get a lot of criticism for being ineffective. My question basically is, 'What is *the problem…the problem?'* There are problems, thousands of problems every day that they have to solve and those problems are 1000s of problems to solve on a minute-by-minute basis. It's always evolving…The matrix is always changing…once you please somebody you are bound to be upsetting another group."

spaces, workers, and violence[54] that makes the circulation of stuff possible remains tucked out of sight for those who engage with logistics as consumers. Yet, alongside billions of commodities, the management of global supply chain imports elaborate transactions into the socius—transactions that are political, financial, legal, and often martial."[5556] (1). Cowen's text beautifully unravels and the hidden costs, the production of space to accommodate the goods

[54]The violence that Cowen refers to throughout her text also relates to the underlying ruthlessness of capital that is critiqued in social thought from Marx forward. Jim MacLellan, speaking of the history of shipping, catches himself in midstream talking about the fluidity of capitalism: "Every case is different and even once you analyze it, it's changing all the time. Everything is moving. It's moving all the time. It's a free market….well, with the caveat that….actually it's a monopoly." He explains further, "[It's] like the ocean is flowing and that's what rates do from day to day. They can change in a heartbeat. Onassis oil genius was observed in all this volatility and the Seven Sisters controlled the shipping going back to the 20s. Onassis noticed the volatility….the Seven Sisters with their own fleets [and] spikes in production go out into the chartering markets. What he did was he purchased or bought….the oligopoly….long term charters when the rates were low, and then put them all in the bay, and let them sit there in moth balls, and then the first crises that came….They couldn't find any ships. He had everything. You're a taxi driver….just sit there until you receive a call….that's how he made his billions. The Seven Sisters had to cut him in. [It's] a percentage not of spike but long term business…know the spikes and capital and nerves of steel. [The] grain trade...Louis Dreyfus...oligopoly of the grain trades…cement….7 or so sisters…[They] have influence because of huge capital reserves. Try not to make too much of a scene because they don't want to be regulated. Dreyfus bought entire Texas cotton crop, and then shipped the cotton to certain warehouses to nearby production facilities. [Gives you a] glimpse into Wild West market beneath the scenes….China's GDP has a massive impact…devaluations of the RNB...lower value of the product the thinner the margin…exceptions there are spikes…typically it's a thin margin…margins of merchants for business of spiking….waiting for spike to take advantage for an occasional windfall…container ships are in the red for past few years…Shipping line margins are thin which is the result of overtonnaging. Typically when the margins go up the owners of the shipping lines rapidly expand the number of ships that they have and the size of the ships. But they typically, and I don't know of an exception, they always over do it. And when they over do it, they provoke a cycle downwards ironically. Logically, looking at it, you wouldn't go into it [shipping]."

[55] Cowen further elaborates that the goods movement is subject to interruptions and contestations and labor disbutes and botched or slow shipments (2-4). When I began my internship, the Port of LA's business development team with whom I would work was just returning from meetings with Target and Ann Taylor in Minneapolis. The reason for the visit was to assure Target and Ann Taylor that the Port remained a viable and *trustable* site for the import of their goods. In 2013 the Port of Los Angeles' longshoremen had gone on strike in October and forced, for several weeks, cargo ships to line the San Pedro Bay and Pacific Ocean outside of Long Beach. The weeks long disruption over labor disputes dampened what corporation would hope to be a seamless transition to the flow of commodities from Los Angeles to Chicago for the holiday season.

[56] While I do not trace the violence in the goods movement, I learned during my time at the Port of Los Angeles that there exists tremendous risk for the longshoremen—the men and women who operate equipment such as trucks and cranes on the grounds of the terminals. The business for these skilled laborers is not only dangerous it is laced, from moment to moment, with the risk of death. According to Chris Cannon, one the managers in Business Development, "We try to minimize accidents. It's very important. But when they happen, they are brutal, deadly. Stuff that you just don't want to see." The TEUs are moved by terminal operators who sit high above the ground in control booths that move along the derricks on rails. They use remote controls to attach cables to the four cutout hooks on the corners of the TEUs and once the hooks clasp to the four corners, the boxes can be moved off the ship, onto the ship, or into stacks on the terminal. At times the boxes fall, smashing multiple stories to the ground where ideally no terminal operators are driving vehicles or walking on foot. As part of my internship experience we did a terminal tour with the terminal operator, in a mini-van, and no one was allowed to get out of the van. This was a very strict requirement of being allowed on the tour.

movement, and the making of subjects in commodity chains. I use Cowen's idea of subject formation to theorize how the Port of Los Angeles, through law, was forced into becoming a very specific type of subject, that of a global environmental steward. This chapter examines air and water quality to examine, not merely how the movement of goods is hidden from end consumers, but more so how the production of goods—as Cowen points towards happens not in a singular location but in how they are "manufactured across logistics space" (2). Taken in this purview, the deleterious affects of manufacturing commodities will, across the social life of these objects, leave environmental impacts across these production spaces. However, the air in San Pedro and Wilmington and the water in San Pedro Bay were subject to a very specific and measurable type of damage that resulted in legal action taken against the Port. The legal battles—aimed at thwarting further Port expansion—cast the Port in the position of having to remake itself as a new subject, an environmental subject.

The End of Backfilling & Beginnings of Environmental Subject Making

The Port of Los Angeles—a major economic node in the United States' circulation of commodities and scrap metal exports in particular[57]—came under scrutiny in 2001-02 when the City of San Pedro, with the help of the Natural Resources Defense Council (NDRC), sued and stalled an expansion of the China Shipping Terminal at the Port of Los Angeles until an air quality and environmental impact study was conducted. Ultimately, the expansion was approved under the conditions of working to improve the air quality of Los Angeles County in general. After this decision was arrived at in 2002, the Port of Los Angeles reinvented itself as a steward

[57] The Port of Los Angeles's third largest containerized export is scrap metal, behind waste paper and animal feeds. Scrap metal is the largest export overall at the Port of Los Angeles when including break bulk shipping.

of the environment under its "green port" initiatives and policies: Clean Air Action Plan (CAAP) 2010, Clean Trucks Program (2006), and the Ocean Going Vessel Emissions Program (2008).

To begin with, Los Angeles' natural environment is vulnerable. It sits on semi-arid, desert land that has been transformed into the built environment; lacks its own natural sources of potable water; sits along numerous faultlines; and houses a population large enough to place it as a global megacity (Davis 1992). While vulnerable, Los Angeles' position on the Pacific Ocean also makes it one of the most desirable global port cities to import commodities from the East and to export throughout the Pacific Rim. The City of Los Angeles has the second largest GDP in the United States and the 8th largest GDP in the world. Los Angeles' GDP is made in part by the $320 billion of revenue generated by the Port of Los Angeles, the world's fifth busiest container port and busiest in the United States. At the same time, this volume of commerce has made the Port of Los Angeles, coupled with the Port of Long Beach, the greatest contributor to pollution in Los Angeles County (Polakovic 2002). Because of intense scrutiny over this pollution and its ramification on human health (Moretti and Niedell 2009) in the communities surrounding the port, the Port of Los Angeles has initiated several key CSR initiatives to remedy its contributions to air and water pollution through mandating cleaner trucks, ships, and trains.

Anthropologists have recently started charting the rise of Corporate Social Responsibility (CSR) models and ways of making knowledge—and thereafter policy—in relation to business, the environment, and human populations (Rijak 2004; Welker 2002). More specifically, Rijak (2004) suggests that CSR is typified by three core tenets: 1). Voluntary, corporate self-regulation, 2). That social and environmental improvements ultimately lead to enhanced

economic opportunity, and 3). CSR has intimate ties to development. Following the 2001-02 lawsuits, the Port of Los Angeles began and sustains self-regulation, nearly doubled business and revenue, and is a leader and knowledge producer[58] about development projects in its own harbor and ports around the world.

According to Jim MacLellan, Director of Business Development at the Port of Los Angeles, the environment rarely surfaced as a concern until the 1970s. Steel production had boomed for decades in the Los Angeles basin—Fontana specifically— feeding the infrastructural needs of the growing megalopolis with structural steel. Shipbuilding remained at the Port of Los Angeles until roughly this time and that would even come, in retrospect to be a problem that plagued the Port's current development efforts due to years of toxic minerals finding their ways into the water and mud in the surrounding Port channel. MacLellan recalls a time in the 1950s where the air in Los Angeles was so polluted that it was constantly orange. Toxic air quality in the Los Angeles area in particular, and the state of California less specifically, is well known to most. What many don't know, unless they grew up in the area, is that there were days of such intense pollution that children were forced to stay home from school and the elderly and vulnerable were advised against venturing outside. A Los Angeles based interior designer and furniture designer told me that she grew up "not trusting the air unless she could see it." In short, the productiveness of industry, the transport of goods and massive populations of fuel-burning automobile drivers form a tripartite structure of incredible air polluters.

[58] Beginning in 2006, Dr. Geraldine Katz, the Port's former director until December 2013, began and chaired the Pacific Ports Air
Collaborative Conference (PPCACC)—a global outreach conference to focus development tactics and sustainability measures.

What plagues the goods movement industry, from an environmental standpoint, is the vehicles that transport the goods are sources of heavy pollution. Ships burn bunker fuel[59]—a product almost exclusively derived from the sludge and dregs of the oil petroleum refinement process. Bunker fuel is what the ships engines run on and it burns at astonishing rates, costs and contributes significant environmental degradation through CO2 emissions. According to Marcel Van Dijk, a ship traveling from Shanghai to the Port of Los Angeles, "Will burn between 8 and 10 tons of fuel per hour on average. The bigger ships 12 tons. It's bunker fuel. That's a good $1 million then on your return of investment simply in fuel." And when this sludge-burning, commodity-carrier arrives at the Port of Los Angeles—before environmental regulations were enacted—the longshoreman would unload the TEUs (shipping containers) onto an end-of-life truck. In short, an end-of-life truck denotes those owned by the trucking lines that used polluting, often barely functioning, and imminently near their parting out or scrapping—to serve basically as dump truck to move the TEUs along the 17 mile 710 corridor to the rail yard just south-west of downtown Los Angeles. In response to this degradatory pollution, the Port enacted the Clean Trucks Program (CTP) in 2008. The guidelines of the CTP paid incentives to trucking lines for ending the life of nearly-end of life trucks. Truck lines were incentivized with a carrot or stick choice: either enter the Port to pick up TEUs at inopportune times of the day—usually when traffic was heaviest at peak rush hour windows—and pay higher entry costs or receive monetary

[59] Bunker fuel prices, just like the major seasons in which goods are shipped in massive quantities, follow a series of cycles that are based both on holidays and consumptive patterns as well as the rising and lowering of fuel costs wich depend upon geo-politics and markets. Jim MacLellan explains: "For certain products, at certain times of the year, that could be $5000 or $3000. The traditional buying cycle—July through October period—has all gone haywire right now for various reasons. There's still is a bit of a cycle. Although the cycle is less extreme than it used to be. Yeah, it's very volatile. They have to bring it in by the end of June for back to school. Back to back. November [is] Thanksgiving…Halloween (you laugh). It could be interrupted at any time for a number of reasons….a dozen or more…[It] Has to do with bunker prices….One of the things that's saving the shipping lines now is that instead of 110 bucks its 50 bucks for a barrel of oil, right...so since about 75-80 per cent of the cost of the ship is oil….You can imagine…the unbelievable impact of the variation in the bunker price that people don't notice. Once you know that it's a very simple arithmetical equation."

values of roughly $20,000 to scrap the truck. To the Port's amazement an astonishingly high number of truckers and truck lines took the credit rather than paying the higher fees. While there was initially choice under these regulations, the Clean Air Action Plan at first monetarily incentivized ships to lower their speeds 50 nautical miles outside of the Port. Over several years, ships were transitioned to a requirement to use electric energy—rather than burning bunker fuel when docked at the Port. The exhaust and particulate matter that ships give off as they burn bunker fuel is released into the air and water which creates tremendous vulnerability and variability as to where, specifically, it will get taken by wind currents and the flows of water, currents.

While the air quality in the LA Basin gradually improved, and rates of respiratory illness and cancer decreased, the transport of goods via ships and trucks remains a site for improvement. Lisa Ochsner in the Environmental Division of the Port explains:

> Ships, truck and trains still the biggest culprits of air quality. While the cargo handling equipment has turned over to cleaner diesel or LNG…they want it to be zero emission…Terminal equipment first and then transport…[T]he truck driver who needs a charge and then needs a charge…it just doesn't exist for the goods movement chain for the trucks or trains or locomotives that can make it out of the Calhoun pass in Barstow area. Heavy duty, not passenger freight, is a different world. Broadly…there's always a desire to push the envelope. We're proactively looking at programs and projects and providing the test ground for these new technologies and projects here at the Port: energy, [the] solar program, wind turbines and whether that could ever happen? [We have] Alta

> Sea, the first marine research center at a working port. Alta Sea will reuse 1920s-30s storage facilities for climate change and marine research."

Lisa firmly believes that successes of the CAAP and Clean Trucks Program have created tremendous successes and advances in technology that came out of the legislation. Too, she believes there is work to be done. This work overlaps what she calls the nexus of the environment and potential impacts: "There's always that environmental nexus and whether it's a benefit or an issue that translates into an impact there's always that intersection." While remaining in tune to impacts—environmental problems with air and water quality or adverse affects on human health—Lisa concedes, "[We have made] great accomplishments, groundbreaking programs [and] significant reductions in pollution. [Yet we] always push to come up with newer programs and newer goals to keep meeting targets [that are] more at federal and state level. Still a pollution problem exists. There is new science, new data, and things we did not know about." Part of what Lisa speaks to is the ever-changing grounds of scientific technology and monitoring that sidle ever-changing metrics against which the Port is evaluated. She explains, believing that legislation and current levels of success are not enough:

> With all of the reductions and UC news articles about air pollution in LA Basin…cancer declining…There hasn't been a lot of information about infants and your faced with a strict set of guidelines to deal with health risks for children, infants in the womb and more complex ways of calculating impacts. Detailed air analysis will see impacts triple with OEHHA. The environmental analysis on the Everport container terminal expansion [where we add] acreage to the backlands…if the old model were applied there

> would be x amount of impact. Now in today's world of how we calculate air quality that s same project will show triple the impact that it would have shown a year ago. [It's] not to say that we don't appreciate the new science…Programs are going to be that much more important because of the new tools and methods to calculate. The clean trucks and clean air action plan is now regulation at the state level. To say that were complying with law and now triple impact with receptors…major gap needs to be addressed push the envelope to see what we can do. Just complying with laws and regulations is not going to get us there...zero emissions…[We are in the] early parts of testing…cannot commit to something certain until its commercially viable…go to manufacturer and purchaser…[That's the] status of technology and research.

These very guidelines that Lisa speaks of--the constantly shifting regulations and calculations by which environmental compliance *allows* the Port to conduct business--are the new standards by which the Port must operate and conform. In this statement we also see the constantly escalating complexity of balancing "commercially viable" opportunities for the "businessy" side of the Port with the non-negotiable requirements of the law that is cultivating and continuing to challenge the Port as an environmentally sensitive subject. If one peels back the veneer of the commodity movement, and sees beyond the readily available products on the shelves of stores, the matrix of logistics that enables those goods to appear is entangled and messy to say the least. Business as usual for the Port—the good run up until the 70s that Jim MacLellan spoke of—now requires sensitivity to the environment, to consider the particulate matter a form of detritus from the movement of goods and its possible deposition, by air and water, into local communities. We hear, however, a certain type of committed ambivalence in this tension generated out of the new

subjecthood of the Port. This new subject position of environmental steward, grafted onto the Port through legislation, has challenged the Port with growing pains; though, as we hear in Wunder's statements, the new matrix is birthing ever more advanced technologies and monitoring mechanisms that are forcing new types of environmentally sound equipment onto the goods carriers. In short as the Port is slowing being molded into an environmental subject, with each new requirement grafted onto them by the State of California, there is a ripple effect, like the very water in the Port's channels, into the goods movement. I discuss the infusion of "green" into capitalism below.

Local communities—specifically those in San Pedro and Wilmington were the sites of deposition of the contaminate air and water resulting from the transport logistics of the movement of goods through the Port. From Port Director Stephen Cheung's perspective, always one fraught with balance and radical hope for a positive outcome, the CAAP had tremendous results for most parties involved. For some parties, those whose lives suffered from the pollution the change was not fast enough:

> Take the Clean Air Action Plan. Is it working to reduce emissions? Yes. But a lot of people are really upset that it doesn't eliminate all pollution. Why spend $2 billion dollars of the public dollar even though it's not from the taxpayers…[Money] that you are going to spend on this project although you're not going to completely eliminate pollution? Could it be better spent on another issue? So, you're always going to have debates and going back and forth. I don't think we can stand still. I think we need to do the best research we can and solve the problem in front of us to the best of our ability and

> hopefully it will not have too many negative consequences, but then resolve those problems. But for the lives lost due to lung cancer…for this constituency…it didn't happen fast enough.

What Cheung refers to in the constituency of not fast enough, are those people in San Pedro and Wilmington—two places that were depositories for the drifting particulate matter from all the shipping pollution and ground transport pollution—who suffered health conditions and cancers from the fallout of the movement of goods. These, at times deadly, repercussions of the goods' movement through the Port of Los Angeles were the very factors, the loss of life and well being, that ushered in the lawsuits which stopped development, the business side of the Port's deeded mission, from advancing in directions of *new* growth.

Expansion of the Port of Los Angeles's business—the movement of goods into and out of the Port by ship, truck and train—relied, after the lawsuits, upon, literally, *cleaning up* their act with respect to the pollution generated by these vehicles. While the Port of Los Angeles is *now* a global leader in trucking, shipping and clean energy—with respect to low emissions—the ability to market oneself as this "green" Port came through a matrix of lawsuits related to these very grave circumstances Cheung references. In short, the Port was unable to grow and expand its terminal operations due to these lawsuits; therein thwarting the end-on-end, year-after-year growth that Western capitalism demands. To achieve this growth the Port needed to develop more terminal space—which in short meant backfilling the watered property—the San Pedro Bay in the Pacific Ocean—that touched the Port's already backfilled property. We must remember, that both the Ports of Los Angeles and the Ports of Long Beach occurred through

massive feats of engineering and re-contouring the *god-given, natural* environment, through which miles of the Pacific Ocean were transformed into land. Marcel Van Dijk explains how much land has been backfilled over the years and why backfilling for further Port expansion is challenging at best and completely unlikely:

> Eighty percent of what you see is landfill from here to Long Beach. We are looking for additional landfills. Places to fill. But it's cost prohibitive. We are a city agency. We can float bones on the financial market to attract additional money to finance projects. [However] we need to maintain a very healthy balance between income and debt. We are always income over a long-term debt, but a new terminal needs so much extra finance that we have to borrow beyond our threshold. If we do a considerable landfill we have to charge that customer [shipping lines] so much money that they have to charge the shipping line a certain amount for the lift on / lift off so they would not be competitive. Pier 400 cost $800 million ten years ago and the cost now would be double labor for landfill and then environmental mitigation. To mitigate a new project, they look at emissions, ship arrival, trucks, locomotives and environmental rules are getting more and more restrictive. The off-road vehicle emits more in the construction phase. All our yard tractors have on-road diesel issues. All new construction relies here at the Port on electric rather than combustion engines. Federal guidelines that came out of Clean Trucks and from the EPA, this sort of pollution [you will] have more…You can create a new parcel of land, but the carriers [shipping lines] cannot compete.

In Van Dijk's statement we hear all the entanglements that pinion development to environmental regulation to the ability of shipping carriers to "compete," or generate profit to loss margins fitting with the standards of multi-national corporations self-proclaimed business models. Stewardship of the environment was not a choice—it was grafted onto the Port by lawsuit after lawsuit after lawsuit. *Making* new land—changing the contour of what remains of first nature on the California coast from San Pedro to Long Beach—poses the potential for increased business. As the Port has discovered, business ventures aimed at reshaping the already-altered contours in the second nature of the Port come into unfeasible and economically unstable matrices when attempts at development are run through the EPA and California agencies aimed at protecting first nature. The slim remains of first nature—tainted with contaminants in the land, air, and water of the second nature of transnational commerce at the Port of Los Angeles—are guarded by environmental regulatory agencies. The Port—a giant in the transnational movement of goods—constantly wrestles with a formidable opponent in first nature and its championing agents.

According to Stephen Cheung development was thwarted because of multiple lawsuits. Cheung explains the nature and consequence of these lawsuits:

> The Port has been sued by community and environmental groups for many years, and the environmental groups became successful in terms of blocking the expansion and redevelopment of the port complex. When that happens, when you cannot get one single environmental impact report through the Seaport Complex of California Environmental Air Quality Act—which means your cannot invest in the Port and upgrade it—when you

> are not able to upgrade your port infrastructure, and when you can't upgrade your port infrastructure you are basically a dinosaur. You're going to be outdated in two seconds, and other ports will be able to come in and accommodate the larger ships that are happening. You have to be able to look at the international shipping trends and every single year you have a larger ship that is coming in and when you are not able to accommodate it…they will go elsewhere.

Side-by-side, in this statement, we hear Cheung weighing and considering the tantamount tension of the Port—developing and expanding business while also meeting the ever-expanding and ever-evolving requirements demanded by the State of California to protect water and air and thus human populations. Cheung continues,

> Seeing this as a threat, I believe it was a period of close to 12 years that there was not one single EIR that was passed. And so for 12 years without major improvement to the Port you can see where it's going. So the Port officials became concerned. You cannot move forward unless you basically do something and CONCEDE in some way, and so that's when the blue-green coalition was created by the government structure, and they were organizing and talking to the community about how we move forward and the community was very direct: 'In order for you to move forward you have to lower your carbon footprints; you have to lower your environmental footprints.' So, basically, the concept of growing green came about. You expand Port operations, but you reduce emissions. You reduce pollution to a point that was actually less than before the redevelopment.

Cheung concedes, noting that it's public record, that,

> Going green is based on lawsuits. [There was] no forward momentum. Once you're moving forward…you have to move forward…[and] turn it into marketing campaign…..why not? 'We're the greenest port.' 'We're the environmental port who can do this and do it responsibly when damage is being done to the environment.' The private sector rejected it at first. [B]ut the private sector caught on and used different things like an environmental tracker on their products to have the lowest possible carbon footprint to get their products from point a to point b and, since they're already using the Port of Los Angeles, they count that into their carbon calculation, and they're able to show they are an environmentally responsible partner and that consumers should choose their product over another.

Cheung's statements, as I again reference, tie back to the 1908 deed of the Port to service multiple constituencies. Then, in some sense, it becomes best to view the Port's evolution as an iterative movement across time and space that is constantly being checked—not only by the 1908 document—but also by the multiple actors, constituencies, and, after the lawsuits, regulatory agencies *as well as* the multinational corporations—ranging from shipping lines to your Target's and Best Buy's—that demand the Port's services. With respect to the ever-evolving subject position of the Port, the growth of "green" business tactics has risen alongside the Port's genesis into a green steward. Cheung speaks to this matrix that is in constant flux and negotiation:

> You need to look at history and the reality; the way that the Port of Los Angeles came to become a marketing tool. The environmental movement happened, and this can also be considered a marketing tool, realistically, and this is no secret because it's publically documented. It [going green] benefits the health of the communities around you. It really allows for growth, really, in ways that we have not seen before, and that's exactly what happened. EIR's (Environmental Impact Reports) started getting passed and development projects started happening. So over the last 8 years or so, we've seen so many wonderful redevelopment projects, and I call it the blue-green coalition because the blue collar groups—the labor groups—are also able to move and be able to create jobs that way. There are more longshoremen.

While Cheung alluded to the complexity of the matrix of keeping constituencies happy, and the difficulty of pleasing all the people, creating greener policies--that in turn protected the air water and human health--actually enabled more substantial growth to occur in the Port's business operations. At the same time, the growth also enabled the creation of more jobs for longshoreman in the adjacent cities.

As Cheung and MacLellan and Ochsner all referenced, the environmental movement itself is ever evolving, and a stark reality of conducting business in California is to grow business under a body of laws and enforced environmental compliance legislation. While environmental compliance is at times cumbersome for businesses, the shrewd and calculated evolutionary process of capitalism does not escape Cheung's purview:

> The supply chain is actually forced…[It's] a marketing ploy…basically this is capitalism…what is the best way to move your products in an efficient way and if this evolves having the appearance [of good]…why not use it to your advantage? Capitalism is moving towards this anyway. It's [capitalism] an interactive program…[There is] significant impact actually, I believe, for the world…Consumers and the market are demanding that products need to be green [and] transport green. [To] create a sustainable way of doing things because its also costs…the energy fluctuation is too much of a risk...If the Port of Los Angeles can reduce that risk by basically being off the grid [electric renewable energy] we won't have to compete with the consumer from a risk standpoint, and from a resiliency standpoint just in case there is a major earthquake. [We] heard the number [of lost revenue in the Southern California region] will be close to $2 billion per day if ports are disrupted because of a natural disaster."

What Stephen Cheung and Lisa Ochsner refer to are the complex matrices and processes that have crafted the Port of Los Angeles into a particular type of environmental subject. As Cheung points out the number of disparate groups—residents in communities near the Port, the private sector, the City of Los Angeles Government, the State of California environmental agencies, and the shipping lines—all have interests in protecting their health, the local air and water quality, or their business ventures, respectively. This matrix of pushing business and development forward while also tending to the environment puts these disparate groups into constant negotiations, contestations and forced evolutions. The evolution of the Port from a business venture that could no longer develop land and take on more customers in the form of shipping lines because of its, at times deadly pollution, to a green enterprise was the result of legislation grafted onto the Port

through legal action. The translation of legal action, and environmental change that was bridaled to the Port crafted a new subject position of the Port of Los Angeles—environmental steward. In Cheung and Ochsner's statements we hear the competing and at times ambivalent narrations of the tensions between development and the environment; of what it means to address the constantly changing metrics of air and water quality monitoring while courting business and keeping tenants and the community happy. The marketing of the Port as 'the green port,' wedded to lawsuit and scientific monitoring and the constantly changing technological advancements of greener transport that the Port is pushing does truly make it at avant garde edge of advancing green technologies into the degradatory pollution that is hidden from end consumers along what Deborah Cowen has called the "socius." The Port's greening, as Cheung pointed out, is intricately tied to the overall greening of capitalism. The narration, or as Cheung called it marketing, of the green and environmental to consumer based products is a requisite index of the ever evolving capitalist modernity. I have used this section to explore and unwind the hidden tensions and obfuscated logistics chains that hide the complexity and potential environmental degradation of our everyday products.

Double Tenancy: SA Recyling

One lucky tenant of both the Port of Los Angeles and the Port of Long Beach is SA Recyling—the West Coast's largest scrap trader. SA Recycling has a stranglehold on the distribution of scrap metal into the Pacific and towards Asia out of Southern California. By controlling sites at the Ports of Los Angeles and Long Beach they are able to thwart competitors from developing similar facilities at either port. I met David Thornburg, SA Recycling's Public

Relations Director, at a scrap conference in Orlando, Florida, and we maintained a relationship for the next 3-4 years. David lead me through the six-inch deep rusty brown water that covered most of the lot at his Port of LA scrap site. Surrounding us were small hills of rusty scrap metal that were being constantly wetted down with overhead water. The water is sprayed to keep the scrap metal from exuding particulate matter—some benign and some potentially harmful into the local air and water supply through drift—the movement or spreading of particulate matter, naked to the human eye, by wind and water currents. With David at the wheel, we drove around in a high-wheeled golf cart, through rusty brown water to meet with the site director who maintains the youngest link in a lineage from his grandfather working on this site that has always been related to scrap and at one point was the site of the shipbreaking yard owned by National Metals.

The water that pours over the scrap metal throughout the site was put into the yard in 2011. David explained that when the water-driven technology—to curb contaminants and dust from entering the air and water at the Port—was a pre-emptive move to address regulation that they felt was inevitable. SA Recycling proved to be the first scrap facility in the United States to add these RTO devices to their shredders having collaboratively worked with designers at ink plants and other industries that already had them and purposed them for far different uses in the manufacturing of other products. In short, what SA Recycling accomplished with this migrated technology was an iterative gesture of technological advancement and preemptive environmental stewardship—as Lisa Ochsner referenced with respect to the shifting impacts of law and regulation on industry. David is excited about his trade and these advances in setting standards in the scrap recycling industry that have now become regulated in Southern California by the Southern California Air District. The SCAD--according to David--now has more stringent

regulations on air pollution than anywhere else in the world. When a car is shredded it still has traces of oil, VOCs, and paint contaminants that are released by the heat caused by the shredder and into the air which the RTO catches. David beams that SA Recycling was likely the first company in the world to install this technology on the shredders; however, across all of our meetings, David anxiously awaits the return of pre-2008 recession markets to return to the scrap trade. David also mentions, what Lisa Ochsner and Marcel VanDyk have all formerly mentioned: namely that the air carries particulate matter from vast distances and deposits them at the Port as well as how the ships and trucks create their own pollution:

> The Ships now are 40 miles out [off the coast of California] and they are forced to switch not that far, [foreman cuts him off interjecting] 'Easy. Easy. I'll give you another example you know that when we have the fires that are in the San Bernardino mountains…they're easily 50 miles away right... ('Yeah,' David says agreeing)…You'll get ashes all the way over here from the Santa Anas...I'll get ashes in my yard…(excitedly) Yeah all the way from the San Bernardino Mountains.

It is for this reason that the ships are incentivized at this time, to cut speeds to 12 mph and reduce to low sulfur oil, 40 miles out and will in time be moved out to 200 miles. The trucks are incentivized up to $20,000 to replace the end of life trucks and SA recycling, blessed by this fortunate carrot or stick choice, handled a significant portion of the end of life truck shredding.

David beams that SA Recycling was likely the first company in the world to install this technology on the shredders; however, across all of our meetings, David anxiously awaits the

return of pre-2008 recession markets to return to the scrap trade. The shredders at SA recycling only run one shift when formerly, pre-2008, his foreman tells me that they ran from 8 in the evening until 1 in the afternoon the next day. This enables a drastic energy cost reduction in addition to needing the scrap to meet the 65,000 tons a month that were demanded by international smelters. In 8 years SA recycling has shredded 2.5 million tons of metal at this site. David states,

> We should really have shredded about 4 million tons in that time but it's the market and economy. The region just doesn't support enough material, and it's all about the price. The price goes down and our intake goes down because know one wants to find or get scrap metal. They don't want to find it or get it. You know the guy who spends hours driving around the neighborhoods is wasting more money and his own time to find the metal and get a little bit of money than it is to do something else to get another job. The intakes down and the people who are really gung ho to get the metal its not there when the economy is low people are buying less appliances, less cars, their owning cars longer…during the recession there were 5 million less cars sold and now were seeing that there are 5 million less cars being recycled. We were doing 40,000 cars a month through here…[They both laugh and point to a pile of cars that looks gigantic to me, but they laugh hard] and the foreman says through his laugh, "Well…you can certainly see for yourself."

David tinkers with ideas about how to reinvent the trade and has dabbled in investments of iron ore that he pointed out to me on one site visit. The pile of ore sits in a pile on the west facing side of the Long Beach site waiting for a buyer. David spent a good bit of our meetings saying that

things really hadn't changed much since the recession of 2007-08 and that the scrap metal trade was still very weak, slow and not much movement or value being created. However, as a strategic move, SA Recycling still maintains a facility at both the Port of Los Angeles and The Port of Long Beach. David talks about the market as an economist would and does. He waits for the market to return. Eagerly waiting for this time.

On an early fall afternoon, David and I boarded a Chinese scrap vessel that was being loaded for three days with cranes and an interior bulldozer that was craned in to push the metal in the hull and fill it as tightly and evenly as possible. The ship holds 55,000 tones of scrap metal or the equivalent of 27,500 full sized pick up trucks. We walked up the gangplank and handed our passports to a young Chinese man in flannel pajama bottoms and an Abercrombie and Fitch T Shirt. A cigarette dangled out of the corner of his mouth with the plumes circling around us and into the air while we signed our names on the log. David and I entered the tiny corridor of the ship that lead to the eating quarters, to the rooms upstairs, and to the commons room with thick cigarette smoke from the crew playing cards in their pajamas. We observed their card game for a minute or two and left with me feeling a little bit of uncertainty from David about being aboard the ship. From there we were led to the top of the ship where a smiling, kind-hearted Japanese captain was using stencils and charting maps for the voyage home. Along the walls and beneath the windows were volumes of nautical maps. From the captain's room we could see in 365 degrees into the San Bernardino Mountains to the East and into the Pacific Ocean to the West. We moved from the captains charting room down another flight of stairs, and another, out onto the decks of the ship. Galvanized smoky gray steel hatches were closed except to eastern side of the ship. We stood over the edge looking 25 or more feet down to where a yellow Caterpillar

bulldozer was leveling out the piles of metal and pushing them back and forth as one would grade land. In the far corner of the ship's hull was another open hatch that the metal was being dumped in by a crane truck. The hull of this ship was capable of holding 55,000 tons of scrap. Or what Chicago scrappers would consider a good "load" that would have needed to have been collected 27,500 times by that many scrappers.

The hull of this ship—loaded with rusty spent, discarded and collected American household and industrial scrap—would begin its voyage to Asia in two days. After 3 full days of loading the vessel, it would spend another two weeks in voyage to Shanghai. Across the commons of international water, and its less-stringently regulated and legislated currents, this vessel with its belly full of scrap, would consume millions of dollars of bunker fuel during the voyage and its emissions and particulate matter and drift and deposit of this matter would be left to the unregulated and largely unmonitored air and wind currents over the open ocean. The scrap in the belly of this ship will, in short time, feed the blast furnaces of small steel mills in Asia. While this scrap was tended to with the least environmentally degradatory processes while at the Port—the results of the Clean Air Action Plan and Clean Trucks Program advancements and the legislation grafted onto the Port from the State of California and the EPA—the handling of this scrap by freighter, truck and train will be subjected to less stringent regulation in Asia.

Out of the matrix of environmental protection—specifically of air and water at the Port of Los Angeles—we are afforded a lens to view the environmental costs and impacts on human health caused by the movement of goods that is hidden from end consumers in the United States as they merely pick products off shelves or have them, seemingly magically, dropped in Amazon boxes

on their doorsteps. Further, this matrix that developed the Port of Los Angeles into a green port and environmental steward attentive to the double-bind of *both* environment and business expansion affords a lens into the crucible of the new modalities of attending to—or at least minimally narrating—an understanding of creating, producing, and moving products in the least environmentally harmful manners. Ultimately, the movement of scrap metals, waste paper, and "air," or empty TEUs, as some of the top exports from Los Angeles—the 8th largest economy in the world—affords a window through which to view the shifting global vectors of production in the United States and the exponential, unregulated growth in developing sectors of Asia. There is an irony, materially and symbolically, that many of the domestic products leaving the Port of Los Angeles as scrap will be delivered back to the region of the world in which they were first produced only to be melted, formed into *new* metals through smelting, and then *new* commodities composed of metal that could very likely be delivered back to the United States and quite possibly through the Port of Los Angeles. This circular nature of commodity movements, of global commodity circuits of recyclables, across tremendous distances and bodies of international water, begs important questions about sustainability and carbon footprints and consumption patterns that are not fully alleviated by the *good* of even the most thoughtful businesses even when regulated by state bodies or laws.

Chapter 4

Fire:
Recycling, Smelting and Steel Production in the Indian Subcontinent

Theory and Indian Steel

Jindal Steel Works' (JSW)—an integrated steel plant located in the South Indian State of Karnataka—rolling mills are capable of producing the infrastructural and finish products for the material undergirding of daily, Indian life through applications of heat and fire in metal making. Without fire and heat the process of metal making at JSW would be rendered impossible. In the first three chapters, I discussed the out of mindedness of things and waste and shipping logistics. I now turn to the out of mindedness of the production process of these materials and the beginning of the manufacturing and circulation process of *new* steel commodities in India—things that will eventually wind up in the scrap heap, or—in the context of Indian cultural practices and philosophy—be repurposed through *jugaad*. In this chapter, I theorize the import of steel to modernity; layout the landscape of scrap recycling in Mumbai and the politics of jugaad—or the 'quick fix' of making un-useful things useful. I examine jugaad as a practice and that shrinks streams of scrap that are needed by Indian mini-steel plants to use for melting scrap. It is in and through this politics of reuse through the practice of jugaad, and the usefulness that remains in things, that Indian recyclers desire imported, foreign scrap for melting.

David McCauley, a scholar grounding his work in ecological philosophy, attends to fire as a largely obfuscated region of daily life in most peoples' purview. McCauley writes,

> With the domestication of fire and the wedding of *techne* (art, craft, or skill) with *logos* (reason, order) to form the concept and practice of technology, we discover a decisive turning point in the transformational capacities of humanity…It is

> literally firepower—which soon after takes the form of soldiering, forging, melting, and burning—that inaugurated a new chapter of human history relative to the natural world. (36)

He continues, speaking to the hidden nature of fire in the process of domestication:

> At the same time that fire has expanded—and in a simultaneous sense contracted—into the industrial realm where it tends to be rendered into a largely invisible form of combustion…The force of fire is everywhere felt—even in the manufacture of material meant to resist it—while the flame increasingly remains unseen, especially in urban environments. (39)

What might remain unseen for Macauley who brings forth the poetics of fire in the manufacturing process, though out of mind, is that a material resonance is left behind. Materially and semiotically, steel and iron pose a special entrance point into a global, universal, and structural modernity. Gilles Deleuze has suggested that more than any other naturally occurring element in the global environment, metal occupies a special, privileged, and universal materiality:

> What is so bizarre about metal? It's not eaten, metal. This means that the very peculiar situation of metal, from the point of view of sensory intuition? I'm not invoking science at all, but we could ask ourselves what metal is from the point of view of chemistry, [what is] a metallic body, or what are mineral salts? Ultimately

> they're everywhere. I claim that ultimately, metal is co-extensive with matter. Not everything is metal, but there is metal everywhere, that's the metallic synthesis. There's no assemblage that doesn't include a metal bit [*bout*]. Metal is the fundamental procedure by which every assemblage is consolidated. The man-horse unit is fastened together with the stirrup. You say to me, but what happened before metal? Stone? There's no co-extensivity with stone. What does that mean, co-extensivity of metal and matter? It doesn't mean matter = metal, it means that in a certain manner, metal is the conductor [*conducteur*] of all matter. When there was no metal, matter had no conductor.[60]

While Deleuze suggests the universal presence of metals, metals interestingly are an object that is rarely in a pure unadulterated state. In *The Story of Iron and Steel* (1917), J. Russell Smith writes, "Among the seventy [metals in the Earth]…Iron is by far the greatest in quantity, the cheapest, and most fortunately, for mankind…the most useful" (1). However, while abundant and seemingly inexhaustible, iron (the ore necessary to produce steel) is troublesome in its impurity: "Iron is one of the most elusive of the metals in the respect of its rare occurrence in the pure state" (2-4). This rarity and lack of purity makes for an elaborate industrial process known as smelting which is accomplished by ridding the ore of impurities and then coking it (burning in a cauldron) until all of the iron melts out (12).

[60] Translations located at Web Deleuze: http://www.webdeleuze.com/php/texte.php?cle=186&groupe=Anti%20Oedipe%20et%20Mille%20Plateaux&langue=2

Steel, one of the great products of the industrial revolution, is an alloy composed of carbon and iron. The soft literature[61] on iron and steel (Bezis-Selfa 2004; Knapp, Piggot, & Herbertt 1998; Madar 2009; Stein 1998; Wu 2008) traces the relationships between industrialization and mining to the slave trade; the intricacies of mining labor and its relation to prostitution; the relationships between state industrial policy and steel production and the competition between nation states for the lion's share of the political economy of steel production. Alongside these more nuanced examinations of the relations of steel to the aforementioned analytics, these authors as a composite, ask what the texture and materiality of the world would look like if the red in apples and ribbons did not contain iron, what travel would look like without trains, planes and railways, or how one might attempt to cross the San Francisco Bay without the Golden Gate Bridge. There is at once a romantic tone in the poetics of these questions, yet they are also grounded in a resonant, structural materiality. This materiality has also been intricately tied not only to the structures and nation states it has helped flesh out, but also to the highly gendered nature of work related to iron ore mining, steel production in mills, and production of the commodities in which steel and iron are composed. Steel production and iron ore mining has a rich history and relationship not only to the manners in which nations are industrialized, but also to the ways in which masculine labor and identity politics have been yolked to the very making of iron and steel (Cetano 2001).

India's steel industry began in the late 1800s during colonial occupation with Tata Steel. The Tata family remains one of—if not the primary—"captains of industry" in contemporary India.

[61] By soft, I mean the literature that does not address the chemistry of iron and steel production. This literature focuses on the cultural, material, industrial, economic, and semiotic properties of iron and steel. As I suggested in the first section, in "things," it might be possible to use not only recycling but some of the literature on iron and steel—in terms of its chemical composition and the science behind this material resonance of industrialization—as a type of theory machine alongside the idea of recycling as a theory machine.

The gambit of commodities produced by Tata ranges from mobile technologies to the Nano Car (priced at $3K to appeal to the burgeoning Indian middle class) to mining companies to the makers of cold pressed steel. The Tata company and its founders occupy a particularly nostalgic space in the Indian imaginary in that the Tata company was forged in the crucible of the original Swadeshi Movement during British Colonialism in India, specifically in the Indian State of Bengal in the early 1900s. The Swadeshi Movement had a first wave thrust in the early 20th century—during British colonial occupation—in which early Indian nationalists realized the import of Indian-based businesses and the development of strictly Indian products in a strictly Indian economy; one of its primary centers of resistance to the British was to boycott British goods and in the face of these boycotts to produce cottage and other industries that were Indian made and Indian financed. The face of swadeshi is largely worn by Gandhi who can be seen at his spinning wheel, encouraging handicrafts and textiles to be produced in India, rather than importing tweeds and wool garments—for which there really was no use in India—from England. What is of tantamount importance in relation to Tata Steel is that it was strictly speaking a swadeshi industry: financed, almost exclusively by Indian capital, thus marking for the first time the wealth of Indians, over the English, and the successful ability of Indians to garner the capital to run what, even at that time, was an industry that signaled modernization (Lala 2007: 16-17; see also Bahl 1995; Madar 2009; Wu 1998). In a provocative argument, Bahl (1995) locates the rise of the working industrial class with the rise of Tata and its roots in the swadeshi movement—a movement that in Bahl's estimation was intricately tied to the rising nationalistic political movements in India and the advocacy of developing a politically-minded Indian body politic who favored Indian over British commodities.

Following independence from Great Britain in 1947, the new Indian Government placed strong emphasis on the development of its steel industry. Slightly over 60 years after independence, India has achieved the status of the world's second largest producer of iron ore—the mineral necessary for steel production—and manufacturer of finished steel. Tata Steel no longer stands as the crucible of the Indian steel industry. Following Independence, the socialist Congress Party Prime Minister Jawaharlal Nehru focused on developmentalist tactics and strategies, that aimed to place primary means of production in the governments hands—including iron extraction (mining) and the steel industry. Shortly after Independence the Indian government ventured into, and remains involved in steel production in the capacity of SAIL. While Tata dominated the steel industry in India up to the early 1950s,[62] there was already rising competition in the 1920s and 1930s from Mysore State Iron Works (now Bhadravati) and Bengal Iron and Steel Company. Currently, India's position as a global leader in iron ore extraction and steel manufacturing proves necessary for its efforts to achieve a developmentally-based conceptions of industrial modernization; however, a gap exists between the subcontinent's supply (including exports) and its internal demand for steel-based commodities, given that the government remains acutely involved in Indian steel production itself, in the capacity of SAIL (Steel Authority of India LTD.). SAIL is a holding company regulating iron ore circulations. Since the time of Independence, and in a more active capacity since the early 1970s, SAIL has also closely watched and monitored the mining and import/export of steel commodities and iron ore in an

[62] http://www.cci.gov.in/images/media/completed/Indicussteel_20090420151842.pdf

attempt, through regulation, to reduce government deficits.[63] Currently, India is ranked as the third largest steel manufacturer in the world.[64]

At the same time that India is a global leader in iron ore extraction and finished steel products, India is also one of the global leaders in terms of metric tons of imported scrap metal commodities from the United States, in particular, and from other parts of the world. The environmental degradation and energy costs to mine for iron ore and to produce steel-based commodities far outweighs the cost of working with scrap metals, which can be reused at 100% capacity—hence the existence of 600-700 mini-steel plants scattered throughout the subcontinent. The mills feed the belly of their blast iron furnaces both Indian and foreign scrap. In 2011 Indian steel companies, traders, and scrap dealers imported 4.5 million metric tons of scrap metals,[65] or slightly over 9 million pounds. The volume of these metals, and the wide range of uses to which they are directed, by an equally diverse range of actors, is both the literal materiality and the symbolic space in which the fire process of the foundry and steel mills produces finished products that add to the continued infrastructural, automotive, dwelling, and finished products of the Indian nation as well as producing export products that I discuss in the end of the chapter.

[63] ibid.
[64] http://foundrygate.com/en/noticias/ver/996/india-to-be-2nd-largest-steel-producer-by-2013-with-120mtpa-capacity
[65] http://www.scrapmonster.com/news/indias-ferrous-scrap-metal-imports-may-drop-by-25-over-next-year/1/6972

Waste and recycling in Bombay / Mumbai

On my first day in India, of my 6-month session of fieldwork, I flew into Delhi to do fellowship paperwork. Staying with a dear friend—whom I had met during my previous three fieldwork sessions in India—I attended a cricket match that Abhik was playing in. I ate samosas on the field bench and chatted with the barista at the Café Coffee Day—India's version of Starbucks. As I watched Abhik's cricket match—a sport I still struggle to understand the rules to—I noted three distinct things happening within the same frame of my vision. In the backdrop of the cricket pitch were the towering glass skyscrapers and sexy condos in Haryana—an Indian state bordering Delhi that had made many landed farmers incredibly rich as they sold off their farmlands to the fortune 500 companies and developers. Between these buildings and the cricket pitch, were a series of small rolling hills and shallow ravines. The cricket pitch was consumed by Indian men in their 20s and 30s playing a beloved Indian sport that had been given to them and many other former British colonies. Finally, between the cricket pitch in the background and the buildings in the back were rolling hills and shallow ravines. Men, women and children moved about these hills in brightly clad clothing. The children chased each other up and down the small hills. The men and women worked collecting cow dung, mud, and straw that were molded by hand into large rounds like cakes that are removed from baking pans. It was now November in Delhi and beginning to get cold. The families were making these patties to burn as fuel for their own households and to sell to support their families. In this frame, I note three contrasting and coexisting India's in one: that infused with multinational capital; the traces of the British; and the traditional work of fuel making—a source of heat and smoldering flame that would provide warmth for bodies and the heat needed to prepare food for large families congregated in

makeshift, humble dwellings. As we departed the cricket pitch, I brought my observation to Abhik's attention and he retorted, "Matty boy (laughing) you could spend the next 1000 years in India and you would not understand it. We don't even understand it and we're not foreigners. Somehow it just works."

Through my ten months of fieldwork in India, this running parallel of multi-India's would come to be normalized in my everyday happenings. However, I would conduct my 6 contiguous months of fieldwork at a time of rapid change and excitement as massive growth and output was reaching more than a decade of 10-12% year on year growth. One need look no further than towards the sky, in India's urban sectors, to see 100s of metal cranes dotting the skyline producing new buildings and dwelling structures. This growth, I would come to learn, was the fuel feeding the fire of India's desire for imported scrap. In this chapter, I attend to two forms of fire in the subcontinent of India. The first flame that I examine is that of human passion and desire, the affect that drives action as related to waste and recycling in Mumbai. The second form of fire that I attend to is the literal form of fire of the foundry. In other words, I examine the process of metal smelting and steel making in the mini-steel plant and the integrated steel manufacturing facility of Jindal Steel Works. By examining these two forms of fire, through affect and production, it becomes possible to frame how the impact of what MacCaulley calls the "hidden flame" lights both material production and the deep, impassioned engagement of waste politics and recycling in Mumbai.

I lived for all of my stay in India in Colaba in South Bombay. Colaba is a former island—one of seven in an archipelago composing pre-Portuguese and pre-British Bombay. Begun by the

Portuguese in the 17th century and completed during British colonial occupation, was a multi-century land reclamation projects that successfully joined the seven island via causeways. Earth was excavated, moved and backfilled into the Bay of Bengal. Bombay's position on the Bay of Bengal—similar to Chicago and to Los Angeles's proximities to navigable bodies of water—helped it to grow into a booming seaport. What remains constant from colonial times to the present is that Bombay is surrounded by water on all sides giving it strategic advantage in trade; it is the seat of finance capital for the subcontinent; and it is the cosmopolitan center of India with approximately 18.5 million consuming and waste producing Mumbakars.

On my first morning in India, I sat drenched, not fully understanding nor being equipped for the speed and rain coming from the summer monsoon. I sipped cappuccino on the steps of Café Mondegar trying to warm up and dry off. To my right was a man with a black Hercules bicycle propped on a triangular kickstand. He rode the bicycle while it was in stationary position and a wheel on the handlebars turned a grindstone.[66] Sparks flew off the grindstone as he sharpened the café's knives. I sat speaking with Joseph, the café manager, and a man holding a newspaper over his head as he crossed the street approached me. He began to talk to me about my shoes, a pair of brown leather British Clark's with a gumrubber sole. After several minutes of small talk, and me explaining to him why I had come to Bombay, we were off to a tailor shop to look at rugs. I had quickly been pulled into the vortex of an industrious hustler, not unlike Rick, who would use his passion and charm to basically act as a fixer for any tourists needs in the Colaba area. He earned 10 per cent of sales from directing people to taxis and the same for bringing foreigners into handicraft shops. If the guests did not purchase anything from the handicrafts shops he was given

[66] I will return to this man and his knife-sharpening bicycle below when I elaborate on jugaad—a form of engineering and making-use of things in ways for which they were not intended.

a voucher for a meal at a local restaurant. Rahul had come to Colaba as a nine-year-old boy to work and beg. Along the covered walkway on the right side of the Colaba Causeway was a makeshift sleeping area for 100s of people who could not afford rent and barely food. Rahul too had slept under plastic tarps and newspapers along the Causeway, curled on the top of a newsstand like the beggar children and destitute Indians referred to casually as beggar people. He felt that he was a lucky one because god had looked out for him. Now the father of two and married to a woman who was unable to leaven chappati and other flatbreads with her one hand, Rahul hustled what he could to afford their small flat in Chembur.

Rahul was influential for me getting started on my fieldwork. He led me within the first few days I was in India to Bharat—a second tier kabadiwala who had a small workshop near the Colaba market. Bharat was the owner of a small scrapyard tucked into the hollows of Ginesh Lane. Rahul and I went together for the first time to find Bharat, and the yard boss told us he was not there and to come back. I went several times on my own and became know to the yard boss and local residents in the flats around Bharat's shop. Phenotype is a marker in India, and I would learn that as a "foreigner" in India there was no way to *ever* blend into the scene of daily life.

After nearly a week of coming back to Bharat's shop, I was successful in catching up with him in the late afternoon. Bharat had a son who I came to speak with as frequently as Bharat. Bharat, like many Indians whom I met and came to know more intimately, was fond of making points through parable, metaphor and story. Bharat asked if I had heard the story of the two frogs and the well. I said that I was not familiar with it and he said, "Matthew, there were two frogs in a well. One left the well. The other remained in the well. One day the frog who left returned. His

brother, the frog in the well, said to him it's a very small world. The brother who escaped responded, 'Brother it is a very big world.'"

While Bharat, whose name literally means India, was a second-tier kabadiwala, he had more worldly ambitions for his son. Thus, the meaning of the frog was meant to impress on me that the world of scrap trading was a kind of well that he wanted his son to leave. Bharat beamed when speaking of his son who was currently studying management at a local college. Bharat told me that you could only go so far in business without the proper credentials from university and that his son would, more easily, make twice the money he does. Bharat's ambition for his son was to come out of University making 15-20 Lakh or more—roughly equivalent to US $30k. An ambition lit by the desire to establish the family in the solid upper middle class.

Through my interactions with Bharat, I learned of Chur Bazaar or "thieves market." I walked several kilometers from Colabla to Chur Bazaar to see men deconstruct old cars and motorbikes with hammers and sledges and wrecking bars. Shifting and sorting valuable pieces of the bikes and cars into piles where they get circulated to those who will sell the steering wheel and door handles and lights. This process of parting out and reuse is not endemic to India. Though, reuse is a first order priority rather than junking or using entirely for scrap. Zain Nathani, who along with his father trades scrap and serves on the Metal Recycling Institute of India Board explains:

> India is really not that good at recycling. We are better at reusing. Take for instance an old car. In the US when that car reaches its end of life it is shredded. Here, it is passed on to some guy in a village somewhere who is able to make do with that car

> working somewhat. The same with Chur Bazaar, as you have seen, when the car is finally dismantled there still exists a market for all of the spare parts. That windshield wiper blade that barely works will be good enough for someone somewhere. Same for the steering wheel and seats and so on. We are really amazing at reusing and not very good at recycling.[67]

What Zain Nathani speaks to—an embedded politics and practice of reuse in Indian life—is part of a larger Indian practice known as jugaad. Jugaad, in Hindi, roughly translates to makeshift or workaround.[68] Kumar & Bhaduri (2012) elaborate on the meanings of jugaad in the India's informal sector—or the work environment of 90 per cent of Indians; they speak specifically to the concept of jugaad and application of its principles to those with few resources. Kumar & Bhaduri explain the materiality and resourcefulness that springs from lack of proper resources of India's informal sector—similar to the material form of the labor tactic that I discussed through deCertau as applied by scrappers in Chicago. With respect to jugaad, or the makeshift / work-around, Kumar and Bahduir explain, the process of collecting where resources to accomplish ends through a material making do with what is available becomes possible.[69] They write, "[A]

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[67] Mr. Rao who would be my guide when I visited the JSW integrated steel plant mirrored Nathani's point: "You see Matthew. When someone wears out their collar here in India….what do they do with it? They don't get rid of that shirt. They turn the collar around (laughing). The ability to have things repaired and put back into working order was absolutely astounding to me and came at a nominal expense. Throughout Mumbai, especially near train stations, are shoe and bag repairmen and tailors. In each neighborhood are men who tinker with and repair appliances.

[68] Jugaad has taken on global prominence as a management and innovative technique that, in being reminded of Strathern's domains that I worked with in Chapter 1, has migrated or moved between domains to mean a responsiveness and adeptness in the formal business environment when problems occur. It is also a concept, philosophy and practice that is taught internationally in MBA programs.

[69] There is a global network of similarities between those with limited means and limited access to resources. In some sense there is a kin-like relationship of habits and practices that transcends time and space and links those with limited resources and means to the materiality that they gather, carry, trade, and transform. Examples include the secondhand garment trade in Africa, the Catadores in Brazil, India's ragpickers, and the Egyptian Zabaleen in Cario's dumps. These groups of recyclers and waste handlers have reached global notoriety, attention, and the concerns of NGOs that have banded the laborers together into collectives that fight for their dignity, human rights, fair compensation and even health care. There are similarities as well to the genealogies I discussed of the scrapper

local search is conducted to explore usable materials of discarded products (either from the same sector or from any related sector), for minor repair. Sometime, an available part has to be suitably altered/ modified before reuse."(15)

While attentive the processes of jugaad and the innovations that come out of modification and the application of unintended parts to make things work, they also discuss the greenness or sustainability aspect of jugaad. Kumar and Bhaduri explain the twin forces of computer obsolescence and reuse in India as they relate to sustainability:

> The sustainability aspect of *jugaad* should also be noted as many such search processes are geared to reuse of items that are considered waste materials by the formal sector. This is all the more important in light of accelerated pace of technological obsolescence in the formal sector, which is contributing significantly to e-waste and environmental problems. *Jugaad*, by enabling repairing of artefacts, which would otherwise have been replaced or abandoned, thus contributes to sustainability in a major way" (15).

In thinking of the iconic recycling symbol—the green triangle with the directive arrow pointing to the next iterative link in the reduce-reuse-recycle tripartite—much of India's population dwells and makes material sense of their world in the reuse phase which has enabled jugaad to have a lively, creative, and practical application in the ethos of consumption and repair and

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in Chicago who had a historical counterpart during other eras of American history during which time the materialities collected differed slightly. Kumar and Bhaduri (2012) note ewaste in India's urban sector. This indicates the shifting vectors of materialities and the prominence of recycling domestic and imported computers and other forms of ewaste.

handing down in India. The man on his bike beside me in Bombay—who used the principles of jugaad—to add another chain and chain link to his "cycle," thus enabling the cycle to serve as a means of locomotion between his jobs sharpening knives as well as to serve as the very mechanism or assemblage of the subject-object connection that enabled him to spin the stone on the handle bars that sharpened the knives. It is likely that the Hercules bicycle—an Indian version of the sturdy 1950s era cruiser bike—was purchased itself in the second hand market. Jugaad, as these examples indicate, embraces a politics of versatility, inventiveness, and of making use of objects and things in unpredictable ways; moreso, jugaad is an ethos and practice that puts things into recirculation without recycling them by breaking them into their different material components and reforming them into new commodities. Jugaad is tied directly into India's scrap recycling problem, from a standpoint of the collection of large amounts of materiality. When waste is not being made and discarded, as well as not yet having a fully-formed consuming and expending middle class, and the presence of kabadiwalas in villages and urban centers, India must rely on obsolete scrap from other countries to meet the needs of mini-steel plants and other industries that need smaller amounts of scrap. I discuss the Indian middle class and kabadiwala in greater detail in the following subsection.

What is unuseful and no longer repairable does ultimately find its way into the scrap cycle. Most of the cars and bikes that came to Chur Bazaar—as Zain Nathani pointed out—were irreparable or had been in severe accidents. The clank of the men breaking the cars in the intersection is heard throughout the small shopping district. Metal crashing into metal before the sheets or ¼ panels of the cars—most often the old, gorgeous black no-AC cabs that are famed in Bombay—are hefted by two men onto the bright blue yellow flat bed truck. Two and three men raise panel

after panel after panel of dismantled cars and stack them neatly in flat pieces loaded from the area near the front of the truck cab to the back where ultimately the blue doors close and the metal shafts close the French style doors and the truck is off to the next broker in the circuit of this metal.

It was around the corner from the main bustle of Chur Bazaar, that I met Dinesh and his brother. The two brothers import the metal bands that were used almost exclusively in construction in the US during from the 70s to 2000s to hold together loads of 2x4's. As a boy working summers for my father's construction company one of my main tasks was to use a bolt cutter to break these razor sharp 1" x 20' long bands of black steel wrapping into pieces that were small enough to fit into the dumpster. In the small workshop there were three boys who appeared to be pre-teens shaping these bands into sizable pieces that could be punched on machines into curved pieces of metal that would be inserted into traditional Indian sandals to give the shoes support. As many people whom I saw in all walks of life in India, there are casualties to machine labor: nubbed fingers, missing limbs, blindness in one eye or both. Labor has risks. In particular the machine-driven labor that is often performed in wrote mechanical fashion. While the mind might wander during rote tasks one is ever on guard as one small misstep feeding the metal into the cutter can result, easily in a missing finger. Rather than critique of working condition in India, I suggest that labor has its inherent risks and rewards. The boys slept in a loft above the workshop. This, I learned is part of the deal that is brokered, between employee and the boys when they leave their villages to come to Bombay. The wages are low and the days are long, but the work, as I learned from many informants across a range of walks of life, enables families to eat and for school for other siblings to be paid for and for rents to be paid and debts to be paid off in their villages.

From beggars, to manual workers on all levels in the lower earning sectors of India there is gesture of placing the hand to the mouth—a sign of eating. A type of fire lit by hunger to fill the belly and provide for one's family.

Scales and Sites of Indian Recycling

The structure of contemporary scrap trading in India, that is across the mediums traded—from toenails to tetrapak; from pvc soda bottles to car batteries; from manure to warships—a series of informal practices of collection, accumulation, sale, and commoditization follow a pattern of these materialities articulations from the informal sector into the formal economy. I tracked the processes and commoditization of various materialities of post-consumptive waste transformed into the commodity form by Dalit women and mid-level kabidwalas (junk dealers). While the divide between informal and formal economic patterns has been closed in anthropological literature (Hart 1972; Venkatesh 2008) the lived and on the ground realities of these practices in Indian scrap trading enable purview of the structuring of these economies and the agents within them. The collection, processing, repackaging and selling of the various forms of post-consumptive recyclables in India does not have an even topography or process. Recycling in Mumbai, as is typical throughout India, does have its primary locales for redistribution in specific spatial areas. As in the United States, because of the larger volume of denizens (that is in sheer numbers), urban centers enable the vast accumulation of post-consumptive waste and therein engender an equally large number of scrap collectors and purveyors.

In Kaveri Gill's ethnography *Of Poverty and Plastic* (2007) tracks the for-profit recycling circuits, in particular of plastics, through the low caste Hindus who take on Delhi's garbage. Gill argues, following the oldest profession of prostitution, is the second oldest, scavenging and garbage collecting (p. 2). This old profession, has made way in the 21st century modernity to produce the genealogical instantiation of a "modern" occupation, at once environmentally-friendly and folded into the streams of market-driven, capital accumulation, scrap trading entrepreneurs (2). Gill's ethnography focuses on the urban poor in the informal sector, thus begging important questions about the relations between waste-handling subjects and entrepreneurs, the role of the state of India in alleviating poverty, and very simple, though important questions, about the role of scavengers and plastic recyclers' engagements in market processes. Gill soundly points to the correlations between waste picking and scavenging and low caste Hindu standing of most subjects inhabiting these occupations (27-29). Point towards larger structural problems, Gill works against Indian developmentalist rhetoric of the "facile" manner is which scrap occupations were deemed the "disadvantage or social exclusion[ary] aspect of poverty" (156). Gill[70] sees the Khatiks of Delhi's Mundka scrap trade as being relegated—through both heredity and structural inequality—to this occupation in the informal sector vis-à-vis what she terms market liberalization and modernity. Gill's appropriation of the term modernity indexes market dynamics, failures and inadequacies of credit, state failures to underwrite market exchange and congestion and displacement in Indian cities (21).

[70] Like Gill's work, though focusing on a different materiality, Lucy Norris's recent ethnography *Recycling Indian Clothing: Global Contexts of Reuse and Value* (2010) explores the recycling of clothing—from within India and from abroad—in the space of a clothing recycling bazaar in Delhi. Arguing that the rising middle classes consumption of clothing—and the subsequent discarding of these garments at fashion trends change as well as the usual wear, tear and staining that garment are subjected to in their lives—opens a fecund market and industry for the distribution of second had clothing in India (47-53). Gill's ethnography—bearing resemblance to Karen Hansen's *Salula* (2005) on the world of second hand clothing in Africa—also tracks patterns of trade liberalization[70] that have simultaneously made importing of clothing for these markets less difficult while also enhancing the competition among second-hand garment dealers (52-53).

India's burgeoning middle class, being subjected to the rising commodity-based consumptive culture, is in a sort of double bind in that more money offers greater access to the accumulation of goods and services—often marked by housing in India's urban sectors in high-rise housing buildings which include in-house laundry, consistent access to power and water, and more often than not air-conditioning. At the same time, participating in consumer-based consumptive behaviors, regardless of class-based status making behaviors, there are voluminous amounts of post-consumptive waste generated from these behaviors, in a nation that struggles tremendously with the accumulation of waste in the public sphere because of a lack of landfills and public trashcans. In a chapter entitled "Of Garbage, Modernity, and the Citizen's Gaze" within *Habitations of Modernity*, Dipesh Chakrabarty writes of the differences between the private space of the house as "an inside produced by symbolic enclosure" and the public outside space of the bazaar. Chkarabarty asks, "what then is the symbolic meaning of the outside, which can, indeed, be rubbished?" (71). The outside for Chakrabarty is epitomized in India as the space of the bazaar, by his terms, a place that is at once a means of transportation, a space of commerce, and entertainment. There is risk, danger and excitement in the outside. For Chakrabarty this is a space of the unknown—the chance of a marvelous encounter. Yet the outside of India is one in which rubbish abounds: "[S]tructurally speaking,, that space that collects garbages is that one that is not subject to a single set of communal rules. It is the space that produces both malevolence and exchange between communities, and, hence, needs to be tamed through the continual, contextual, development of a certain dichotomy between the inside and the outside" (71).[71] In conclusion to his essay on garbage and senses of the public, Chakrabarty chides a

[71] In speaking more of public hygiene and disease, Chakrabarty concedes that Indian nationalists and colonialists alike were repulsed by two distinctive features of India's public space: filth and disorder. In the literary imagination

young boy for throwing trash in the street in Calcutta. Chakrabarty recalls the experience: "In my younger and more citizenship-minded days, I once told a nine or ten-year old boy in Calcutta not to throw rubbish in the street. "Why not?" he asked, as he proceeded to throw rubbish anyway. "I suppose you like to think that we live in England, don't you?"

The insolence of the boys retort to Chakrabarty stems from the boy's knowledge of the streets of Calcutta. More specifically, he knows that there is no need to worry about the rubbish that he throws in the street because in cities like Calcutta, Delhi, Mumbai, and Chennai the respecitive Municipal Corporations, in Mumbai it is called Municipal Corporation of Greater Mumbai (MCGM, hereafter), hires a legion of sweepers and waste collectors, there sole duty being to pick up the rubbish tossed into the these city's streets. At dawn this battalion of men and women in orange vests, combs the edges of streets—wielding a stick broom, a recycling bin (the small ones commonly used in the United States) and a thin piece of sheet metal to sweep the debris into. The waste is then separated into wet (leaves, food, animal excrement) and dry waste (plastic chai cups, newspaper, rags from tailor shops etc.). When the trash truck comes along to pick up piles there is a trail of dogs, and sometimes cats, begging to be fed the food scraps that the waste collector on the back bumper of the truck tosses them periodically. Behind, alongside, or in front of the MCGM collectors is a competitive and contested legion of Dalit[72] women from all parts of

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too, E.M. Forester's *A Passage to India* opens with the following on garbage: "Except for the Marabar Caves—and they are twenty miles off—the city of Chadrapore presents nothing extraordinary. Edged rather than washed by the river Ganges, it trails a couple of miles along the bank, scarcely distinguishable from the rubbish it deposits so freely…The streets are mean, the temples ineffective, and though a few fine houses exist they are hidden away in gardens or down alleys whose filth deters all but the invited guests" (3).

[72] Dalits are the Scheduled Caste (a form of governmental recognition) who were formerly known as Untouchables. The affiliation between being Dalit and managing waste stretches back to the earliest instantiations of the Hindu religion. While the caste system was formerly banned by the Indian government in 1950 under Article 15 of the Constitution. The caste system is still practiced in both formal and informal means of execution ranging from the social to the political. One of the most egregious violations of contemporary (global and universal) human rights is a recycling practice of human excrement referred to as "manual scavenging"—by which Dalit women, men, and small

India—and the state of Maharashtra especially in Mumbai—dressed in traditional, brightly colored Indian clothing and saris. These Dalit women are referred to as ragpickers and work all day and throughout the night to collect mainly plastic waste and newspapers. They may work independently—though they are often cheated at the scrap scales if they attempt to sell their recyclables themselves, according to the administrators of the NGO Stree Mukhti Sanghatana for whom I conducted an internship during the summer of 2011. The ragpickers also work for kabadadiwalas (junk dealers / the US equivalent of scrap dealers) who pay them for their recyclables at around 5 PM. Around this time of day in sections of Mumbai, you can see ragpickers on alleyway corners throughout the city emptying, sorting and organizing their recyclables by type of material, before the kabadiwala arrives with a truck to pick up the recyclables. A particular kabadiwala who gained particular fame in the Colaba section of Mumbai, is one such kabadiwala who employs these women. Donning a large gold Rolex watch, and consistently brokering deals on his cellphone, this man achieved fame as a businessman for making so much money that when he travels to see family in their village during Ramadan he flies rather than taking the train, a more sensible, cheaper, and more Indian way of travelling.

Scales of Unregulated Recycling and Calls for Regulation

Dharavi is one of the largest slums in Asia. Further, it is arguably the largest conglomeration of informal recyclers—by GDP and population—anywhere in the world. I visited Dharavi a half dozen times to take in the workshops and the labyrinth like lanes that had

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children remove excrement from the houses of upper caste and generally middle class and higher Indians, placing the waste in steel bowls and carrying it away from the properties. A rich literature exists on Dalit politics and forms of social discrimination: in economics (Thorat and Newman 2010); across social class formations inflected by gender (Banerjee 2004); and in politics (Naryan 2011; Rao 2009).

shops, and cottage recycling facility facilities and the homes of recyclers and regular Indians alike. I would take the train to Dharavi and cross the footbridge over the fetid green-blue water that trickles around the perimeter or Dharavi. Full of pollution and die and excrement the water is at once polluted and the material sign of something plaguing India—how to care for the environment, to provide consistent power, clean water, adequate sanitation, and the disposal of waste alongside the task of providing employment so that one can feed and shelter one's family.

After crossing the footbridge into the slum the streets are alive with the hustle and bustle of school children, workers, and people going about their daily activities. There is a movie theater on the immediate left that is always packed for Rs12 (US $.20) you can watch current bootlegged Hindi films on a projector screen in a small room. Dharavi is a labyrinth of densely packed together shops, tobacco stands, restaurants, houses and cottage recycling rooms. As you enter the industrial corridor of the recycling center there is workshop after workshop after workshop of boys and young men and older men alike breaking down plastics and sorting them by their colors so that they can more easily be melted with similar colors before being molded into new objects. Over the five years that I conducted fieldwork in India, I saw the shifting vectors of value in e-waste recycling as more and more of these workshops became sites where teenage boys stripped wires and broke the old computers apart to find their rare and precious metals inside.

Just as capital finds its sinks in specific locations within the formal economy, conglomerating industry and technically skilled workers in close geographical proximity to each other, thus transforming both landscape and industry and social relations (Harvey 2000), so too does capital

in the informal economy find its fixes bringing together both large scale poverty and informal recycling practices. The slum of Dharavi sits on some of the most prized and highly valuable real estate in India's financial center, Mumbai. Dharavi is a slum of nearly 1,000,000 denizens, of whom most are plastics recyclers. The GDP of Dharavi's recycling and informal sector is estimated at nearly $1 billion (Bendiksen 2008). A prolific literature exists on Dharavi charting the informal practices of recycling conglomerated in this slum (Engqvist 2009; Seabrook 1996); cities within cities in Mumbai in respect to theorizing urbanism (Mehorta 2008; Prakash 2008); and economies of scale in the informal sector related to slum dwelling (Bendiksen 2008). It is estimated that as many as 64% of Indians in Mumbai live in slum tenements (Davis 2007). Dharavi—because of the tripartite power of economy, poverty, and spectacle—secures its spot as a source of pride for Indians at the success of this city within a city, and as a space that is highly trafficked by foreign tourists, led by industrious Indians, who guide these tourists through the narrow smoke-filled alleys of this plastic-recycling slum.

Unlike the unregulated and polluting activities in Dharavi, across the businessmen and NGO directors and with Seema Redkar at BMC, there was a greater and greater calls for regulation of India's recycling Industry. Ms. Redkar believes that the primary problems with India's waste handling are related largely to finance. She, as Officer on Special Assignment Waste Mumbai, believes that the government needs to step in with more financing to provide more labor and to implement more progressive and contemporary waste and recycling possibilities. Similarly, Sanjay Mehta, the founder of Mehta Trading Corporation, believes the largest problem in India's recycling industry is it's lack of organization and lack of government oversight. He believes that a model more like those in the United States and in Europe, where there are rules and laws, for

how scrap dealers are established as a defined body of businessmen with formal business locations would enable a vastly different purchasing and procurements process than the 10s of millions of recycling outfits scattered throughout the subcontinent. Mr. Mehta believes that this would make his business not only more fluid but also more financially lucrative.

BK Soni, and multi-millionaire formal businessman, began a start up as a secondary business called Eco-reco recycling. Mr. Soni, who Seema and I visited one Saturday afternoon several hours outside of Mumbai, uses green recycling standards for his electronic waste recycling outfit. From conversations and observations of his facility, it is in every way different than the informal practices of e-waste recycling that I saw in Dharavi and with the kabadiwalla Mazhur Khan at his workshop next to Dockyard Road—a small workroom where Khan literally dismantled computers by hand; therein stripping the precious metals from the machine which he proudly identified while holding in the palm of his hand. Soni's first ambition is to save the reusable parts; this differs little from the dismantling of salvageable car parts at Chur Bazaar. There are masks in place for workers, and gloves, and very little debris. Soni sees India as needed the type of regulation that Mehta calls for but with a condition: time. Mr. Soni explains, "We need time…The same time that your country was permitted…To do things in our own way and not to have international legislation placed upon us. In time yes, say 20-30 years but not now…it is unreasonable we be held to the same standards."

Entering Formal Production: Jindal Steel Works (JSW)

The largest break in my fieldwork in India, which enabled me to scale up to meeting with financiers, executives, as well as to have access and site visits at mini-steel plants and to visit major steel producing companies, came through Sanjay Mehta of Mehta Trading Corporation (MTC). Sanjay is a handsome, soft-spoken man in his 40s whose high energy and passion for the scrap trade was unparalleled in my fieldwork. With a furrowed brow, and intense gaze emanating from his dark brown eyes, Sanjay asked, "So Matthew, how is it that it took you so long to find me?" I smiled and stated, "Sometimes these connections take years to mete out." He laughed hard leaning back in his articulating office chair and said, " I wish you had found me years ago….I will show you and allow you to see everything that the Indian scrap trade has…you will leave seeing and knowing everything. What do you want to see first? Shipbreaking? Steel Plants? Turnings? Manufacturing? We have our feelers everywhere in India. We are in Pune, Bangalore, Chennai. I will arrange a tour. You will see it all. What do you want first?" He calls for Darshan and states with ebullience, "This is Matthew. He has come to know about scrap in India. I want you to arrange a tour. He will see everything."

Much of what Sanjay stated would come to be true, and more, over the course of two months of peripatetic travel throughout the subcontinent. Bombay would remain my hub of connection to Sanjay and the finance and local kabadiwala world. However, I was launched into the Indian countryside to visit mini-steel plants and sent to Pune and Bangalore—both major manufacturing centers—to learn how first grade scrap was collected during the manufacturing process. I would

visit iron ore mines in the famed, Portuguese beach respite of the State of Goa. I conducted site visits and interviews at several mini-steel plants and ultimately was enabled to be a guest at Jindal Steel Works in the State of Karnataka in South India for three days of access to one of India's largest steel manufacturing plants.

I visited site after site in India at a time in 2013-14 when scrap purchasing and production was low—a continued result of the 2007-08 global economic downturn. In speaking to foremen and directors—whose energy and belief mirrored the scrap metal economy in the United States at scrap yards—plants in India were running at 1/3 to 2/3 of their capacity. Indian scrap purchasers and smelters, like David in Los Angeles and Morietti in Chicago, were awaiting the return of the boom: the bloodrush of high volume buying and selling and shipping internationally to companies like MTC—who would enact the final cycle in bringing scrap metals collected around the world and domestically into newly formed commodities.

One of Sanjay's site directors—Raj—would be tour guide during my first phase of my observations. I was lodged in a roadside hotel—on a busy trucking route—with a small restaurant in the base and another man named Raj—from Nepal—who was the hotel director. After an initial day of drinking tea and visiting sites where metal was manufactured into threaded screws and rods I retired to the hotel, and the next morning Raj arrive to pick me up and see our first mini-steel plants. As we drove through the countryside of Pune—a university town—the dirt and dust created a pigpen-like haze around our white Nissan sedan. I looked out the window as Raj and I talked about family, marriage and scrap. The right of way by the road in many places was on fire. Not large fires, but small brush fires. No one, to my observation, could be seen

tending these fires. They just smoked and held flames at knee to waist level as we drove through the desolate outskirts of Pune to the first mini-steel plant I would see.

Mini-steel plants—estimated to number between 600 to 800—are dotted throughout the rural landscape of the Subcontinent. They are rural rather than urban for several important reasons. Steel manufacturing not only requires heavy inputs of natural resources (ores and scrap), it also requires vast amounts of land to house the production facilities. While deemed "mini" these steel plants actually require acres of land. In rural, often agrarian areas, steel manufacturers are able to hedge their margins by purchasing labor and energy at the lower costs.

In the first mini-steel plant we visited the large metal building resembling a barn sat on a east-west facing line of the multi-acre property. The mini-steel plant was constructed of 4 x 8 foot sheets of corrugated metal panels with a large opening at the west-facing side for loading and unloading metal. The metal that was loaded and unloaded through the large door was composed of both scrap and newly produced building materials such as I-beams and metal rods. Inside the large opening of the garage was a multi-story pile of "melting scrap." This melting scrap was composed of very similar end-of-life metal objects collected by scrappers in Chicago. This heap of scrap—some foreign imports and some domestic Indian collections—will be used to intentionally raise and lower the temperature of the blast furnace that we would soon climb a steel stair case to view. The top of the blast furnace—which is shaped very much like a black, iron chiminea—is where the scrap metal is added to lower the heating temperature of the molten material that is being poured from what look like large cylinders hung on the ceiling with an open end. Like putting wood on a campfire or in the fireplace, when scrap metal is added it takes

time for the internal temperature of the metal to reach a high enough heat to take on the act of engulfing the metal into the mix. Therein, this reduces the temperature of the molten material to the desired temperature.

The blast furnace sat in the middle of the high roofed facility. Along tracks—similar to a miniature version of a railroad track that wound through the interior of the plant into an outside, cooling area—the blast furnace slowly sent out 2 and 3-inch diameter rods. When the rods were emitted from the fiery belly of the blast furnace, a man with 4-foot-long metal tongs rhythmically lifted the rods to the same syncopation of the furnace. Every time a new rod would shoot out of the furnace, glowing fiery red, this laborer would exactingly lift the rod from in front of him to the track just to the left. From here the rod would ride the rollercoaster-like track until it passed through a wall of streaming water shooting down to help the cooling process. The rods then traversed the track to the outside, open-air cooling area of the facility. We followed these rods with the site manager to the outside area where I was allowed to touch the piles of metal. The foreman explained to me the intricacies of the cooling process, the thermodynamics and science behind the process, and all the while implored me to touch the piles that still held heat, yet not enough to burn the skin on the fingertips.

Mini-steel plants, such as this facility in Pune, are able to deliver India with the basic building materials required to support infrastructural growth. The beams and construction materials produced in this, and similar facilities dotting the countryside of the subcontinent, do not produce materials for exports. Thes production of these types of steel construction materials require what directors of the two mini-steel plants I visited refer to as “the heart and brains.” In short, the

"heart and the brains" are the control rooms that, via computer, measure and allocate the chemicals that go into the molten mix that will produce the steel. Mini-steel plants require what I call "near-enough" scientific knowledge in the areas of chemistry and engineering. However, the largely construction-based, steel products do not require the exacting science of what I would see at the JSW integrated steel facility. In the products used for building roads and buildings and other forms of infrastructure, the steel commodities can be produced roughly. They can have small imperfections and the gradations in their chemical composition can be slightly off. What this ability to be off, slightly, enables is a good enough product that adds the structural integrity for which steel embodies.

Sanjay Mehta's business acumen and what he refers to as "feelers" landed MTC in direct contact with India's largest steel producers. The metals, that Sanjay largely trades, are first grade scrap. The scrap comes from the machine driven torch cuttings and turnings produced by major manufacturers and industries. The metals used in the production of cold rolled steel, panels for earth movers (heavy construction machines, ie bulldozers and front end loaders), tractors, cars, motorcyles and finish products for consumer and household use require greater specificity and therefore are made with greater concern and scientifically-driven engineering that demands chemically-sound, material specificity. MTC, Sanjay Mehta's corporation has what he calls "feelers" in all of the different scrap producing industries throughout the subcontinent. More specifically, he believes that MTC is able to gauge trends in the four markets he believes are crucial to growth in India: construction, automotive, infrastructural projects (government), and household consumer goods.

The way he is able to position himself in this knowledge and market-driven sense making is to *feel* out the industries by embedding his labor force in the very locations that he buys and purchases scrap. To feel, in Sanjay's case, means to know how many cars VW produces; how many tractors Mahindra was turning out of its facilities; to know how many "bikes" (motorcyles) Honda was sending out of its factories; to know how much pipe and structural steel the government was buying; to know how much structural steel major construction companies were purchasing. Because his company has literally embedded itself within these companies—by having MTC employees literally collecting scrap in the facilities where manufacturing occurs—he is able to specifically feel what is happening in each industry. The diction, the very use of the word "feeling" connotes a type of sentience—to use the hand to literally make contact with the object and send or fire that movement back to the brain's processing center. While Sanjay's men in the Honda motorbike facilities and Mahindra earth mover facilities had men literally in contact with the metal being cut off panels of the bikes and tractors, the sentience he desired was more of a market feeler. He desired to observe the production numbers of bikes being turned out or roads being built to gauge the cycle of scrap purchasing and recirculation for his business interests.

Sanjay suggested that I fly from Bombay to Bangalore to see the MTC facilities throughout Bangalore—a large hub of manufacturing for the auto and motorbike industry. Before boarding an overnight train south 12 hours to Telongolu, I visited MTC facilities scattered throughout Bangalore to observe the collection and processing of first grade scrap from the manufacturing of cars and motor ikes. The scrap that MTC was collecting from the manufacturing of automotives and bikes is the only type of scrap that is purchased by major steel manufacturers. In short there is a closed loop for the recirculation of scrap created during the manufacturing process. While

there is some loss and waste involved in the manufacturing process this first-grade scrap will be purchased by MTC, or its competitors, and then siphoned back to the major steel makers. This scrap, because of its unadulterated form, commands the highest prices due to its complete composition of aluminum, or stainless steel, or unpainted and unrusted steel. It differs entirely from the obsolete scrap that I saw in Chicago and at the Port of Los Angeles which requires more processing and really is used for melting scrap as I described above.

After seeing the shiny piles of Honda motorbike gas tanks and panels of tractors, I boarded an overnight train in a first class sleeper car to begin my journey 12 hours south to Jindal Steel Works (JSW) in Telongolu. After a sleepless night on the top bunk of the sleeper car, I arose before the sun and waited with my bags in the open-air section of the train between two cars. Terrified of missing my stop, I waited on the platform for two hours taking in the flat farm country before spotting the steel facility on the horizon. A driver in a white mini-van awaited my arrival and drove me to the resort-like compound where I would stay for three nights. I would drop my bags, have something to eat and rest as was Indian custom, before being picked up again in the minivan and delivered to Mr. Rao. Mr. Rao was JSW's equivalent of a PR official. Mr. Rao would accompany me on some of the tour and at other times would drop me off where I was guided around the hot and cold steel rolling manufacturing centers being lead from lead engineer to lead engineer of each part of the manufacturing process. Each engineer gave me thoughtful, yet technical, explanations of what was happening in each station of the manufacturing process. The inside of the rolling mills, at the multinational level that JSW operates, were a far cry with respect to sophistication and science compared with the former stages of observation at the street level in Chicago and the workshops and mini-steel plants in

India. The din of noise in the rolling mill was audible at a different pitch than the other sites I had visited. There was the pressure of air and exhaust from the rolling machines and pumps and compressors syncopating their signals from the computer rooms scattered through the facility. There was also the barely audible sound of the cool water running over the billets and sheet metals being moved throughout the facility on tracks.

JSW—the sixth largest producer of steel in the world—was shiny and sleek. It was modern and a marvel of technology and engineering; of chemistry and human labor. The products themselves moved around the facility transformed from glowing red to black and gray as they landed in cooling areas. These rolled products, though not made from the obsolete scrap that I was accustomed to seeing in the early phases of this project in Chicago and Los Angeles, were themselves commodities. Commodities that would travel to specific buyers and would be put into infrastructure and automobiles that themselves would someday, likely, become obsolete scrap after a long run of use and reuse as my theorization of jugaad emphasized.

The term *integrated steel plant* denotes that the facility is able to turn out both hot and cold rolled products. Hot rolled products are created by rolling metals at temperatures that are above the temperature of recrystallization. Cold rolling conversely occrurs when metals are rolled at temperatures below the temperature of recrystalization. Recyrystalization of metals simply means the process of the grain structures in the metal are able to attract to rough edges after they brought to a temperature of 1700 F. The process of hot rolled manufacturing occurs for larger products such as beams and billets. The process of cold rolling basically takes a hot rolled product and thins it evenly and with structural integrity below its point of recrystalization. In

short, steel products that were first hot rolled are often re-rolled in cold rolled process to add different textures and thicknesses of the metals. Therein, cold rolling requires more processing, more labor and is therefore more expensive. Cold rolled products, roughly speaking, are the ones desired by manufacturers of automobiles, bikes, furniture makers and finely finished products for homes and buildings. Hot rolled products will be the ilk of beams and structural products. Mr. Rao and his procurement director explain the exact numerical distribution of these products and their end usages:

> We send it to…we have long and flat. There are two types of product. The flat means starts with slab [hot rolled]. So we sell slab but in small quantity. Slab is normally used in their own roll in plate mill and roll into plate [and] use in pipes… in pipe making. Mostly to the pipe industry. Next our product is hot rolled coil. The hot rolled coil goes to the pipe industry; to cold roller; to engineering company; to automotive industry. Because many of the parts today are being made out of HR (hot rolled) coil. So almost 40-50 percent products are being sold outside. Balance is being sold to home company. We have our own cold rolling mills. So there cold rolling mills the product out of there goes to drums and barrels; then pipe industry; then auto industry—almost 25 percent; Engineering: 40-50 percent is within industry. You can say we are doing around 20-25 percent. This is fluctuating….when [the] dollar is high we export more…Tomorrow if you want to import and you are out it is difficult to get back in.

The numerical distribution, explained in this breakdown, almost too neatly maps onto Sanjay Mehta's business directive of embedding himself into the major industries in India to gauge

where his scrap procurement will be strongest. JSW produces the metals that will be transformed into both structural components for India's continual material and economic growth in the form of the structural components for erecting buildings and for pipes and barrels that will be used to carry gas and water. The second part of this quotation speaks to the general need of metal for other forms of manufacturing such as the automobile industry which, while penetrated by multinational automakers, still contributes significantly to the overall Indian GDP and creation of jobs for Indians.

Steel products are not only the material undergirding of the built environment, and the durable material out of which cars, trucks, and motorbikes are composed, they are also, in following Deleuze, the conductors of other forms of matter that enable the daily lives of Indians and others in the global community to carry out the basic functions of everyday living with the agencements enabled by metal with other objects. While I have exposed how the philosophy and practice of jugaad has limited the excessive production of obsolete scrap, and thus rendered the need for imported scrap metals, the robust Indian population of 1.4 billion consumers will, with the addition of a larger and larger middle class, deliver India from a scrap importing to a scrap producing nation. More than a simple transition narrative to an immanent modernity, and the consumptive patterns that ensue, India stands in a position, because of practices like jugaad, to disrupt traditional processes of recycling and reuse. While Zain Nathani and Mr. Rao suggested that India is not skilled at recycling in the current moment, the reuse of objects through jugaad and passing things down to others in need is a disruptive politic to waste making that, in following the now iconic Western recycling symbol (reduce-reuse-recycle), is the very model that developed nations are desperately trying to ingrain into their consumers.

Chapter 5

Coda:
Earth, Air, Water and Fire Through the Lens of Shipbreaking

"No boat out on no ocean/
no name there on no hull."

-Bill Callahan[ii]

We began in the alleys of Chicago, where scrappers slowly roamed the back byways in search of treasure—the condenser from a refrigerator, spools of leftover wire, relatively small bodies that initiate the rivulets that turn into streams and rivers of metal that eventually flow on ocean currents inside other bodies of metal, shipping containers on giant transoceanic voyages in the hulls of great ships. These ships themselves figure in the global scrap economy – not just as transportation in the goods movement, but as eventually scrap themselves. But where do these whales wash up, and who deals with them? This concluding chapter takes up the case of the Clemenceau, a ship mired in legal and jurisdictional controversy because the dismantling of its body creates traces in human bodies – injuries, scars, cancers that manifest only later – which spotlight the unequal impact of otherwise "environmentally sound" practices with which this dissertation has been concerned. In this chapter I examine bodies: the corporeal body of the shipbreaker; bodies of water and air and land; and bodies of jurisdictional and rights'oriented documents; and the bodies of ships. I aim to hold all of these bodies together to examine how the potential breaking of Le Clem unveils the darker, less green, side of the recycling industry; a darkness that poses immanent—though untraceable for decades—risks to the bodies of shipbreakers and Indian's natural environment in the tidal recesses of Alang in the State of Gujarat.

John Barnes, a *New York Times* journalist, was fortunate to have seen a ship beached in Alang He describes,

> After waiting for the high tide that comes with a full moon, the ship's Greek captain, Marinos Galatoulas, raised anchor and nosed her inland, steering a zigzag course toward flapping red and yellow flags on the beach. Smoke pouring from her funnel, the vessel

> sailed the last few hundred yards full steam ahead until her rusted prow crested the shore and rose gently into the air.[73]

This vignette, captured by Barnes,[74] describes the anomalous, counterintuitive, violent and poetic process of driving a ship onto a spit of land—literally beaching it like a breached whale composed of metal--before breaking it into pieces with machinery and blow torches so it can be sold for scrap metal. However, this vignette only captures part of the wildly complex process of shipbreaking, a process that occurs in clandestine and contested conditions in developing nations. In this chapter I sketch the processes of shipbreaking, the laws which attempt to govern it, the *potential* environmental repurcussions and address the laborers involved in 'breaking' the ship, and the health hazards and bodily risks they incur through their labor. In this piece I also attempt to tell a story of vessels and bodies. Vessels in the forms of ships that cross oceans defending nation states or conveying market goods or travelers from state to state. Bodies in the form of water; bodies in the form of human subjects, composed of a corporeality that has an outside surface and an interior system; and bodies of law[75]. I examine these various bodies and vessels

[73] http://www.nytimes.com/1998/08/09/world/on-an-indian-shore-where-ships-go-to-die-profit-is-law.html?pagewanted=1?pagewanted=1

[74] Barnes was lucky to have witnessed shipbreaking in Alang. On the morning of my scheduled trip, Darshan of MTC—Sanjay Mehta's assistant—called and in his excited, fast clip of communication, expressed the urgency of my need to immediately cancel my plain flight to Gujarat. While Sanjay had assured me that it would be fine to visit the shipbreaking yards, he had received notification from the yard that I was to visit that they would be unable to accommodate my visit as it was well known after this case with Le Clem that no foreigners were allowed to see shipbreaking in Alang.

[75] The manner in which I read law in the colony and the postcolony follows Sally Engle Merry's statement that, "It [law] is both a system of meaning and an institutional structure backed by the political power of the state. Laws define persons and relationships, which create, if they do not reflect, popular consciousness" (2000: 17). However, as I argue in this paper, the popular consciousness and the persons holding this consciousness are never fully in agreement nor never

through the lens of shipbreaking; a process that relies upon land, labor and lax environmental law to enable a for-profit recycling industry to occur despite the inherent health and environmental risks unleashed through the release of asbestos and other toxic chemicals into the lungs of workers and the environment. I suggest that the shipbreaking industry relies upon contingencies related to health, appearances, and time to commit egregious violations of universal human and environmental rights in the Alang shipbreaking yard in the state of Gujarat, India.

A Ship out on the Ocean

MV Le Clemenceau was a French aircraft carrier named after France's First World War Prime Minister, Georges Clemenceau. Nicknamed *Le Clem*, the ship sailed for over 35 years and was an integral, 'flagship,' vessel in the French defense fleet. *Le Clem* was decommissioned in 1997. Shortly thereafter, the pertinent question of what to do with the 'her' body arose. The ritual involved in the construction of ships and their decommissioning, not to mention the lore and affection of those associated with ships that touches the anthropomorphic, is a process that marks the life of the ship in manners resembling the giving of blessings in Christian ceremonies at baptism and during funeral processions. In short, the affective worth of a ship is not underestimated by its crew nor the nation who owns the ship. However, the affection and nostalgia directed towards vessels like le Clemenceau fade when the nation, or company for cruise and cargo carriers, determines the vessel no longer seaworthy. If the ship is not to be transformed into a museum, hotel, or combination of the two, as is our very own *Queen Mary*, the ship is often sold for the value of its scrap metal.

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fully formed materially. And thus, the law is never fully formed materially nor as a coherent body.

Following decommissioning of a ship—which has embedded in the very idea that the ship fails to be, literally, 'ship shape'—is what to do with a vessel such as one the size of *Le Clemenceau*. Le Clemenceau's dimensions are staggering: it weighs approximately 32,780 tons, stretches 255 meters long and has a deck width of 51.2 meters. One would think that with the value of scrap, often in the range of $225 US Dollar per ton (a little over 2100 pounds) there would be no shortage of companies who would gladly take the vessel off of the French Navy's hand. While vessels such as le Clem have a shelf life, as the iron which composes the body[76] of the hull rusts and deteriorates, a nation's decision to decommission the ship signals a concern for the lives of the crew members/passengers and additionally for the cargo contained if it is a carrier. Coupled with representations of a nation's military glory, might, and its commercial enterprise, large ships such as *Le Clem* are difficult, legally, to contract out to shipbreaking companies because they are full of asbestos and other deadly contagions. While vessels such as *Le Clem* were symbolic of the nations might and stature, to many developing nations—in particular India, Bangladesh and China—these ships become symbols. As symbols the dying Western ships signal to burgeoning capitalist classes, and nations themselves for the numbers of jobs provided by securing shipbreaking contracts, a step towards industrial becoming and potentially economic entrance into a Western capitalist modernity.

The process of breaking ships—which is literally to disassemble the ship piece by piece—was formerly conducted almost exclusively in England and the United States. However, currently,

[76] Not an intentional pun. It is not taken by the writer as ironic that the ship takes on anthropomorphic qualities—the most common of which is to be referred to as a woman—and the whole vessel is likened to a body. As I inch towards a discussion of the universal, one of, if not the, universals of being human is the inevitability of corporeal death and decomposition.

these ships are going to several nations in Asia who lead the international shipbreaking industry. One could argue that this mirrors a general trend in the outsourcing of labor by the United States and Western nations under the general outline of neoliberalism. Further, it might also be argued that this is happening through the larger scale practice of globalization—by which I generically mean the movement of capital and markets to *all* regions of the global community by way of a 'takeover' that strips agency of subjects and nations alike and places them under the spell of capital. While both of these arguments are plausible and operable (though honestly a little banal at this point), what becomes interesting alongside these well-established practices is the practice of Western nations sending to developing nations their waste in general (recyclables and e-waste), but more specifically their toxic waste. While securing a contract to break a ship like *Le Clem* signals promise to some, to others it signals a human and environmental disaster. Perceived in this way, it registers nothing short of the dumping of toxic waste into the world's developing nations.

The interesting part of this story—and its very difference from NGOs and academics calling foul play at the debilitating manipulations of labor resources under neoliberal and within globalization discourse—is that the process of having a ship broken is not to have anything come back (in the form of a commodity circuit). This process seeks to have the object completely obliterated from the memory and responsibility of the business or nation[77]. To break a ship entails literally deconstructing the ship piece by piece. The aim of a nation or business having

[77] This is not necessarily how things work. Part of my fascination with recycling and commodity circuits is that the exact traces of where things have been is unknown and only metaphorically trackable/traceable. The scrap metal recycled from these ships could very well wind up back in the United States. Further, this speaks to the very notion of vulnerability of the object and person, and seeks to lessen the gap in the subject object divide.

their ship broken is to obliterate its ontological/material time-space coordinates. Or, maybe not so drastically, to have its ontological status be the general concern of another group of people.

Contemporary sites and practices of the shipbreaking industry can be said to mirror a type of reverse colonial extraction to that in which I posited in the introduction to this paper. The desiring complex typically associated with colonialism follows a desire for land, labor, resources, and a population of bodies to tax. In finding a site, company, and nation to take on the breaking of a ship, Western nations, in this case France's attempted to desire to deposit *Le Clem* in India, entails finding sites where lesser environmental standards, or those not present or more easily abused, are sought by first world nations. Shipbreaking is a contested practice by a range of internationals organizations (including Greenpeace, native NGOs and the UN).

The reason why Western nations are reluctant to break ships is the result of increased medical and scientific knowledge about chemical agents—some natural and others manmade—that are embedded in the form of objects such as ships. Coupled with the advancements of scientific and medical knowledge, comes the advent of increased knowledge about the environment. Coupled with these processes there has been the development of new techniques for the production of building materials and the advent of policy and laws, developed by agencies such as the Environmental Protection Agency (EPA), about regulating and safeguarding the lives of those involved with hazardous chemicals and the environment. In short, this has lead to shipbreaking being cost prohibitive and highly regulated in 'developed' nations.

The major reason why shipbreaking is costly in West is because of the massive quantities of asbestos found in the ship. Typically, the hulls of ships, ceiling tiles, and the insulating material around pipes contain high levels of asbestos. Asbestos is one of the most genius natural fibers ever harvested by humans; it is also one of the most deadly. According to the EPA[78] asbestos comes in six different naturally occurring mineral varieties that are denoted in connection to their shapes: chrysotile (serpentine), crocidolite (riebecktie), amosite (cummungtonite/grunerite), antophylitte, tremolite, and actinolite. These are all enumerated under the Toxic Substances Control Act that denotes them as cancer causing agents. Because of the chemical composition of these fibers,[79]their fibrous structure and tensile strength, they can be easily woven. Additionally, the chemical composition of these materials enable them to resist heat, fire and other chemicals for which asbestos was used as an insulator and fire retardant in a number of different products: clothing, disc brakes, cement, roofing materials, and cigarette filters.

Asbestos has been linked to lung cancer, mesothelioma (a rare form of cancer in the thin lining of the lung, chest or abdomen), and asbestosis—a long-term disease of the lungs marked by scarring caused by the asbestos fibers in the lung. Asbestos related lung diseases are most often found in individuals who have been involved in particular types of industries. Some of the laborers who contract asbestos-related lung diseases include shipbuilders, plumbers, electricians, and brake mechanics. As asbestos is a fiber that travels via the air and is taken in via inhalation into the lungs, where it then lodges/embeds itself in the lung permanently, most individuals have

[78] http://www.epa.gov/asbestos/

[79] I have not had a chance to handle this much in my work, but with the metal I am beginning to learn that specific chemical qualities of metal are what make them so highly desirable. In the case at hand here it is the ability of these fibers, because of their chemical composition and their very shape, that enables them to lodge in the lungs.

trace elements of it in their system.[80] As many of these trade-related workers' stories attest, not all of the asbestos related fibers make it into their lungs, but remain in the hair and work clothes causing another movement when it touches furniture and is shaken form clothes during laundering, and even transferred to babies who are nuzzled against their father or mother's clothing on which the asbestos fibers lie.

Asbestos is banned from importation and production and use in the United States except for production under incredibly narrow conditions based upon trace percentages of the substance. However, this is not the case in a number of countries including Canada, China, and India[81]. Asbestos exposure may and may not lead to cancers of the lung or the stomach cavity. A subject inhaling asbestos fibers in the present points towards a future marked by lung related diseases. The indeterminate nature of this happening *universally*—evenly across all subjects who inhale or who come into contact with the fibers—gives some including the judicial body of the Indian Supreme Court System—a way to enable subjects to remain in contact with this *potentially/contingently* deadly fiber. In the narrative accounts I have perused over the years, are the stories of those subjects who 'worked in shipping their whole life and smoked three packs of unfiltered Pall Malls a day and lived to be 95.' We hear these same narratives about smoking. However there are also infants and children and wives who have contracted asbestos-related lung diseases and ailments. There remain clear correlations between asbestos exposure and cancer as there are correlations between smoking and cancer. In both instances, what one exposes to the lungs in the present has potential affects on the likelihood of being diagnosed with cancers or

[80] Asbestos was commonly used in most man-made building materials as an insulator and fire retardant through most of the 1980s. Now it is illegal to use. However, the amount of it released during this time period makes it prevalent in the air.

[81] A twist in this argument comes in the form of India still importing rather significant quantities of asbestos. See statistics, not confirmed, from an Indian NGO: http://www.indiatogether.org/2006/apr/hlt-asbestos.htm

other bodily ailments related to specific objects/materials breathed into the lungs. Or put slightly differently, to refer back to my exposition on the body in the beginning of the argument, the human body is an open system, thus *vulnerable*, to other human bodies and bodies of contagions and other deleterious environmental or manmade objects.

It is around the contingency of cancer-related illnesses from exposure to asbestos which lead to the EPA monitoring shipbreaking. Subsequently, nations and businesses sought ports of call with less stringent laws; those usually found in developing parts of the world. The most famous of these other sites for shipbreaking is Alang in the Gujarat state of India. When examining the shipbreaking yards at Alang from Google Earth, the beach looks like it is littered with steel carcasses. In this inlet, one can see over a dozen ships in various states of decomposition. However, the metaphor of decomposition can only be stretched so far as there is nothing natural about the breaking of ships at this yard. There exists a confluence of factors that allow this type of activity to occur in Alang. The primary set of associated factors that allows the Alang Port to draw the volume of shipbreaking contracts to this port include: the low rates of enforcement of environmental standards and control of hazardous wastes enforced by the Indian government; shipbreaking companies lack of compliance with these laws; and a global labor market that preys on capitalist enterprises in developing economies. In addition to these special legal and commerce-related issues, there are special tidal conditions at Alang that sets up nicely for the ships to be beached. Beaching is a technique of literally and intentionally driving a ship at full speed, or less frequently by tug, that forces the ship to be beached—run aground (which we must think of as an action that *radically* opposes any type of intentional or even 'use value' for which the ship was intended.

Alang is situated in the Gulf of Cambay, a body of water known for its high tidal range. The Gulf of Cambay is an inner-tidal zone which affords, with greater ease, the possibility of ship recycling . The seasonal high tides are the ones that make the driving of large ships into the land possible. Alang is located on the coast of Bhavnagar district, in the Gulf of Cambay, 56 km (35 Miles) south of Bhavnagar City in the state of Gujarat, India. The Gulf of Cambay is known for its high tidal range, which is around 10 meters. The vast expanse of inter-tidal zone gets exposed during ebb tide, which makes it convenient for ship recycling activities, whereas the high tide makes it possible to accommodate big ships. Alang is the leading ship-recycling yard in the world. By its own statistics it caters to nearly 90% of India's ship recycling activity. Ship recycling directly or indirectly affects more than 300,000 people.[82]

Before a ship is beached and broken the vessel must be emptied of its contents, namely all of the oil, water, and human waste. Environmental and human rights organizations suggest that when vessels arrive at Alang all of the remains of these substances are simply jettisoned into the water. Further, because the ceiling tiles and hulls of ship such as those in *Le Clem* are filled with asbestos, as soon as those objects are cut, hacked at torched to cut and remove, there will be the release of asbestos into the lungs of the workers and into the environment. In addition to the obvious complexities of 'first world' nations commissioning their waste to be disposed of in developing nations, there is tremendous international concern for the rights of the workers who break the ships; for the immediate bodies of water and air quality that waste is dumped or released into; and concern for dangerous working conditions coupled with low environmental

[82] This information is according to the Port of Alang's own statistics; additionally helpful for later research was the Gujarat Maritime Board's site: http://www.gmbports.org/

standards. With the attempted shipment of the French aircraft carrier *Le Clemenceau* these issues became of tantamount importance to the international community as well as the Indian nation.

Corporaelity in the Post-colony: Laborers, Land and Water

In a conversation I once had with Dipesh Chakrabarty he stated, "There are any number of ways to think about corporeality. In particular is the medical body on the chart on the wall in the doctor's office. There is no actual body that looks like that. Every body is a variation of that chart on the wall." Chakrabarty's statement alludes to the differences between the ideal type of the body on the medical chart and the corporeal body of the living subject. There is a close enough correlation between the generalized outline of the form and the actual body for many diagnoses to occur; at the same time, there is room for deviation between the medical body and the fleshed out human form. Colonialist endeavors have mobilized around this same type of logic of extraction from an ideal type (map of the land/resources; temperament of the natives etc.) to the on-the-ground reality of the colonial encounter. Colonial processes and extraction of resources, labor, and head taxes have been excised onto the natives and land respectively. All of which are actions benefiting the colonial administration and the metropole. In the decades following the end of colonialism in many places, as the postcolony desired to become modern and industrialized like the West, the land and peoples were used in different but equally destructive ways. At the same time that processes of direct extraction from the people and land ended, former colonies, having lax or non-existent environmental laws, became the dumping ground for Western biohazardous and chemical waste.

Colonialism seems predicated on strange desiring complexes. We have our teachers in the Subaltern Studies Group, in Fanon (1967), and in Mbembe (2001).[83] We are able to see that colonization was predicated on desire for land, for extraction of commodities. At the same time, colonized and postcolonial embodied subjects have always presented a problem for colonial and postcolonial administrations and settlers. Colonialist and postcolonialist administrations always seek empty bodies—bodies that do not exist, bodies that are stripped of embodiment. Colonialist and postcolonialist discourses and governmentalities come to strangely *desire* bodies: material bodies (natural resources), spatial bodies (land), and human bodies (subjects/labor force). A strange and simplistic twist in this desiring complex is that, with respect to human bodies, the colonialist and postcolonialist administrations dream and desire the impossible: a disembodied body, or the human form of a body as empty vessel: without memory, hope, knowledge, history. Bodies come to stand in the way, to become problematic or simply to shift from the expectation of obedience for which the administration desires the body to perform. The embodied body of the colonial subject can serve as a site of confrontation and contestation of colonial and postcolonial administrations' discourse(s).[84] Similarly, as I will shortly layout, the subaltern body of the Indian shipbreaker serves as the site of a similar battleground over questions of human and environmental rights in the face of capitalist business practices.

The living human body, in its corporeality, is composed of matter; it is composed of a system of organs and networks that—ideally—work in complex syncopation through chemical reactions

[83] In *On the Postcolony* Mbembe writes beautifully about the body and the quartering off of specific parts of the body of the administrator: his anus, belly, and penis (127). These parts then become discursive elements in the regime but also the objects of farce among the people.
[84] This conceptualization of the body as site of political action, and the ensuing processes of signification following the lynching of victims appears in Daniel Goldstein's *The Spectacular City* (2004).

and dependencies upon one another to sustain the life of the individual. However, the human body is not only a materiality—a shell of flesh and blood and organs. The human body can also be thought of as an open system in which information, food, other bodies (with birthing and sexuality), and ideas enter into its spatial and temporal fields, thus this complex of entrances (and exits) makes the material body embodied. Judith Butler argues that it is difficult to think of the body outside of what Foucault calls "regulatory ideals" (Foucault in Butler 1993: 1). However, Butler concedes that bodies never quite conform to these ideals and that there are slippages (Butler 1993: 2). Amongst these slippages in the materialization and embodiment of bodies, Butler is concerned with the impact of the 'heterosexual imperative.' The heterosexual imperative can be seen as,

> This exclusionary matrix by which subjects are formed thus requires the simultaneous production of a domain of abject beings, those who are not yet "subjects," but who form the constitutive outside to the domain of the subject…the subject is constituted through the force of exclusion and abjection, one which produces a constitutive outside to the subject, an abjected outside, which is after all, "inside" the subject of its own repudiation (3).

I belabor this point, to show that for Butler the 'normalized' body/subject is constructed against the idea of an abjected other (a process that closely follows the general outline used during colonialism). So for Butler, in the process of bodies becoming embodied, the 'normal' subject constructs against the abnormal body who in turn incorporates this abjection into his/her own body politics.

Yet in this process of subjection—of the becoming of the subject—the title of Butler's text, *Bodies That Matter*, plays with the important issues of materiality. Butler points to the materiality of the body itself being the result of *processes* of power: "In this sense what constitutes the fixity of the body, its contours, its movements, will be fully material, but materiality will be rethought as the effect of power, as power's most productive effect (2). She continues, "[A] return to the notion of matter, not as a site or surface, but as *a process of materialization that stablilizes over time to produce the effects of boundary, fixity, and surface we call matter*. That matter is always materialized has, I think, to be thought in relation to the productive and, in deed, materializing effects to regulatory power in the Foucaultian sense"(9-10). However, Butler is also careful to point towards a reading of matter as always found in a type of 'temporalization.' Through reading of matter in the Latin and Greek, she suggests that matter is "neither a simple brute positivity, or referent, nor blank surface or slate awaiting an external signification" (31). Even in her reading of Marx, thought by many to be the basest of materialists, Butler suggests, "for Marx…what 'matter' is, is understood as a principle of *transformation*, presuming and inducing a future" (ibid). While I do not argue a direct correlation here between Butler's reflections on matter and the bodily materiality of either the colonial or the postcolonial Indian subject, what I do suggest is that Butler shows us that there is a material aspect, a literal changing shape and form, of the materiality of the body. Therein the body is constantly in flux, in a process of becoming something else. I borrow this idea from Bulter to capture the sense in which objects, including but not limited to the body, are one thing in the present, and mere potentiality for their becoming in the future. It is in this sense that I suggested earlier that the body is an open system.

In this sense then that the body is a shifting materiality, the bodies of subjects and the bodies of materials are anything but stable. They might even be said to be vulnerable. Vulnerability is something Butler turns to in her later work on subjects and a term that comes up regularly in the work of Webb Keane (2001, 2005) who does not deal with the corporeal body. Butler uses the concept of vulnerability to call for a more open site of the political. She writes, "The body implies mortality, vulnerability, agency: the skin and the flesh expose us to the gaze of others but also to touch and to violence. The body can be the agency and instrument of all these as well, or the site where 'doing' and 'being done to' become equivocal. Although we struggle for rights over our bodies, the very bodies for which we struggle are not quite ever only our own…Given over from the start to the world of others" (2004: 21). If the body then is never our own, what would it look like for the body to be shared? When might it be dominated? How is one protected from this type of vulnerability and, potentially, by whom? What material objects from the world are safe for entrance into this body?

In the same way that our bodies are never stable forms of matter, partially because of their openness to other bodies and materials, neither are the objects through which we engage with in the world. These objects[85] too are subject to unstable uses, interpretations, or semiotic ideologies. Webb Keane—through his work on semiotic ideologies, the linguistic concept of bundling and a commitment to Peircean semiosis—thinks too of vulnerability in terms of objects. Semiotic ideologies, for Keane, do deal with signs though not exclusively: "There is no reason to conclude, however, that semiotic ideologies are a total system capable of rendering all things

[85] I am aware that the body too can be thought of as an object and thing. Here I try to address Keane handling the vulnerability of material objects that are not the body.

meaningful. Indeed, I would suggest below that the openness [note Butler's language here as well] of things to further consequences threatens to destabilize existing semiotic ideologies" (2005: 191). This destabilization is the very space where vulnerability enters with respect to subjects perceptions of objects, how they recognize the signs and what the signs mean to them, and also how semiotic ideologies and the material objects that go into making semiotic ideologies are vulnerable to shifting contexts, interpretations, times and spaces (2001: 70). For Keane material objects are vulnerable as well because of their actual materiality. This vulnerability of the material object points towards an indeterminate future[86] based upon the contingent.

In his discussion of semiotic ideology and its ability to 'furnish instructions' to indexicality, Webb Keane asks a host of questions in reference to material things: "What do material things make possible? What is their futurity? How might they change the person?" (2005: 91). While I will return to these questions throughout the remainder of this essay, I would like to address where Keane moves after posing these questions. Keane situates these questions in a spatial and temporal framework demanding that, at times, these questions become 'urgent' in given contexts. I am interested in a type of urgency—a 'reeling present' (Stewart 2007: 3) or 'scene of immanent force'—in which the body of the laboring subaltnern Indian shipbreaker [explained at length below] comes into contact with a vessel, in the form of a Western ship (specifically the French aircraft carrier *Le Clemenceau*), in which certain material aspects of the ship are laden

[86] This indeterminacy, specifically in relationship to signs can also be seen in the actual writing of Peirce to which Keane is quite indebted. For Peirce knowledge is derived from empirical engagement through "direct observation" (1955: 75) with the world and its objects to glean the appearances of these objects. Knowledge begins with our perceptions of matter. Further, as Peirce states, "we only know the actual through the potential. It would be a little less erroneous to say that we only know the potential through the actual, and only infer qualities by generalization from what we perceive in matter." (75)

with asbestos.[87] In the immediate though urgent moment that Keane points out is the issue of the body of health of the subject/shipbreaker who comes into contact with the asbestos in the form of inhaled particle matter, asbestos. Once the asbestos particles are inhaled they are an external material/object that becomes embodied in the subject. Literally, being lodged in the lung of the worker. The subaltern subject's material bodily composition has thus been changed. It is this moment that I mark as the scene where the materiality of the subaltern, shipbreaker's body changes because of the inhalation of a material object, asbestos fiber.

However, in this sequence of relations, the subject who comes into contact with the asbestos is only *potentially*, only *contingently*[88], subject to the deadly effects of the dust. The dust in the lung of the shipbreaker is mere material potential for lung diseases and diseases of the stomach cavity. If the asbestos fibers lodged in the lung of the laborer realize their potentiality[89]—become lung or abdominal cancer—then the body of the subaltern shipbreaker, and the ensuing illness in the form of another material change in the body, can be thought to index not only the deadly relations between asbestos and the human body, but also the failed relations between certain elements of a 'transition'[90] to modernity in the source of capital's extraction of scrap iron from the ship through the labor of the subaltern worker.

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[87] While being aware of other chemicals and contagions aboard these vessels, I am concerned with handling the asbestos. I handle asbestos because it is the material lodged in the lungs of shipbreakers that has the potential to develop into lung cancer, asbestosis or mesolothemia. Also, this chemical became the object centering the debate about the future of *Le Clemenceau*.

[88] Of probability and contingency Wagner-Pacifi writes, "Probability statements thus hover above reality, creating their won reality which is simultaneously both correct and in error. Probability statements never make contact with reality or—what may be the same thing—only in the long run, when applied as it is to a series, the discrete event has long since come and gone. Contingency then, understood in this subjunctive, probabilistic way, traffics in hypothetical, merely imaginary worlds. That is its beauty and what makes it so elusive. (2000: 4)

[89] The language that I use here is not intentionally callous towards this situation.

[90] Dipesh Chakrabarty (2000) speaks of the difference between the historical processes of transition (an immanent unfolding) and translation which accommodates historical difference.

I belabor the theorizations of the body, sign, time and space to show how a host of materials (ships, asbestos, laboring bodies, beaches, tides, bodies of waters, and laws)[91] work as agencements to enable or thwart the activity of shipbreaking in the Alang in Gujarat state of India. I use the case of the 'law-like' banning of the French aircraft carrier, *Le Clemenceau*, as an ideal typical example of how the refusal to accept this ship into the Alang Port of Call implicates Indian law, French law and UN Environmental and Human Rights Documents. Despite the precedence set by this case, the activity of shipbreaking and the ways in which Indian law 'talks to itself about itself' continues to set precedents pointing more towards a future allowing unsound environmental and labor issues in the name of development discourse, rather than in the name of environmental or human rights discourse.

The issues surrounding the media coverage, the role of the NGO Greenpeace in exposing the circumstances of the Le Clemenceau being clandestinely sent to the shipbreaking yards at Alang, the roles of the French and Indian Court Systems and bodies of Environmental and Human Rights initiatives are complex. The number and diversity of actors and governing bodies concerned over the happenstance, location, and material contents of this vessel set up a host of semiotic ideologies around this ship that—to borrow a phrase from Homi Bhabha (1994)—become 'a complex act of translation' in different and ever shifting cultural contexts. I see the issues, arguments and law and law-like processes at work surrounding *Le Clemenceau* as a particular unfolding, where the meanings in the forms of interpretation of the signs are anything but stable. What happens in the present, including what I handle here in terms of the breathing in of asbestos fibers by the ideal-typical subaltern subject at the Alang shipbreaking yards, point

[91] It seems important to view materials not alone as merely 'things,' but as agencements which couple the human and the non-human into a hybrid object, under the reading of Callon and Calliskan (2009: 7-8).

towards an inevitably uncertain future for this subject that goes beyond the indeterminacy of the specific ship like *Le Clem*.

What I would like to consider in the handling of this case of *Le Clemenceau* is the idea of contingency enacted by a host of actors and institutions (such as courts) all of whom desire particular outcome. These deeply divergent desiring complexes point towards and hope for equally divergent outcomes in the future: The French desire to remove an asbestos-laden aircraft carrier from the physical boundaries of the nation state; the Indian Nation as spoken through the Environmental Committee appointed by the India Supreme Court wants to bar the entry of the aircraft carrier into the shipbreaking yard at the Port of Alang; the owners of shipbreaking companies want the contract for the aircraft carrier because of the thousands of metric tons of ferrous iron that can be sold as scrap; the laboring Indian subaltern subject desires the entry of the ship into the yards at Alang to enable continued work as realized in the money this work generates. This very act of desiring, on the part of all of these actors, places them in the same frame around this ship; however, they evidence the multiple ways in which human beings make sense of the material objects around them and what meanings they take from these objects as signs.

It is in this space that I attempt to examine how these different desiring actors, for whom *Le Clemenceau's* 'breaking' at the Alang Shipyard signs the unfolding of a number of other potentials including, but not limited to, those above. In the limited body of literature on this subject, to invoke Gayatari Spivak's well-known phrase, the subaltern rarely speaks but rather is spoken for in the name of Indian development. Yet, it is the 'vulnerable' body of the Indian subaltern in which the asbestos fibers, from various material parts coming off of largely Western

vessels, are lodged into the lungs of this worker. What I allude to in the following sections are the manners in which futures—of materials, of economies, of bodies, of nations, of ecologies—are at stake around the *Le Clemenceau's* quantifiable materiality: tons of steel scrap, pounds of asbestos, numbers of jobs created, amounts of contaminants released into the air and dumped into the water. I attempt to examine how gestures towards quantification run into difficult conversation with universals [capital, person, nation, environment] through the concept of rights.

The Body of Legal and Law-like Decisions

In this section I examine a number of legal and law-like documents surrounding the particular case of *Le Clemenceau* specifically, and environmental and human rights related issues surrounding shipbreaking at Alang less generally. The documents I examine include the Basel Convention Documents, the UN Declaration of Human Rights, the French Supreme Court Case on *Le Clemenceau*, as well as two Indian Supreme Court Cases—one in which the topic of *Le Clemenceau* is handled by a law-like agent (the Environmental Commission appointed by the Supreme Court of India), and the second an actual Indian Supreme Court Case—following the Commission's decision on *Le Clemenceau*—in which we are granted a situation of law being "in conversation with itself about itself." I read these documents as text, similar to the approach taken by Sally Merry Engle in *Colonizing Hawai'i*,[92] giving the documents, in a metaphorical way, their own body or corpus which themselves are open to the vulnerablities of bodies and interpretations. That is, in this case, to interpretation that shifts in different contexts.

[92] I take this approach first out of a general hermeneutic/close reading interest and secondly because of the relative dearth of substantive interpretive material addressing the case.

After "Le Clemenceau" was decommissioned in 1997, she bounced around—often under contract—from business to business in multiple nations to have the asbestos gutted from her shell and then for her to be commissioned again for scrap. The suggestion was even put for that she be sunk in the Mediterranean Ocean to serve as an artificial reef. The constant shifting of *Le Clemenceau* between multiple nations was the result of multiple businesses in these nations contractually agreeing, possibly doing some work, and then rescinding their contracts to remove the percentage of asbestos deemed necessary under international law set forth by the UN under what is now referred to as the Basel Convention.[93] The United Nations Basel Convention of 1989 was an international legal effort to address and halt commodity circuits, or the mere dumping of hazardous waste from one nation to another nation. The auspices of the convention were largely related to stopping the flow of waste from developed nations to underdeveloped nations.

When the French re-released *Le Clemenceau* to head for the scrap yards at Alang in 2006, the fate of the aircraft carrier was still anything but certain. The ship had been passed so many times between companies in different nations for asbestos decontamination, including two attempts by the French themselves, who purportedly decontaminated the vessel of the appropriate amounts of asbestos. While the case of the *Le Clemenceau* never made it formally into the Supreme Court of India, the Indian Supreme Court summoned an Environmental Committee (hereafter EC) to

[93] http://www.basel.int/text/con-e.pdf. One of the findings and propositions put forth in this document, is that there must be quantifiable transparency—often to numerical specificities of pounds/tons of the given contaminants—of the remaining toxic materials being transported from nation to nation or remaining in vessels to be broken. This is the point around which the whole *Le Clemenceau* fiasco plays itself out. In short, the French had passed the ship around so many times that no one really new how much asbestos is contained on the ship. For further investigation, or a goofy thought project, it might be worth looking into the legal documents of how drugs are weighed when they are embedded or cooked into other objects. I think here specifically of one of the main locations of the asbestos being in ceiling tiles. I could not find anywhere whether or not these were ceiling tiles composed of pure asbestos or whether there were other materials mixed into the asbestos.

deliberate on the case.[94] The appointed committee, invoking the Basel Convention deemed *Le Clemenceau* unfit, because of unusually high levels of asbestos, for breaking at the Alang yard. This decision was made by invoking the Basel Convention Documents calling for transparency of the exact number of tons of asbestos remaining on board the ship. The yards at Alang welcome vessels for scrapping, however when attention is called to the ships in the port, they must have adequate documentation citing that the said ship contains less than 500 tons of asbestos on board. While the EC determined *Le Clemenceau's* documentation of asbestos content to be untruthful, the French Supreme Court's injunction deemed there no reason not to let "Le Clemenceau" sail to Alang.[95] During this time, NGOs like Greenpeace and media agencies started referring to *Le Clemenceau* as 'the asbestos carrier.' Though the French Supreme Court saw no problem with releasing the aircraft carrier to the breakers in Alang, under especially intense media coverage, and advocacy by a number of human rights organizations, French President Jacques Chirac ordered the aircraft carrier to be returned to France two days before a scheduled visit to India.[96] It seems relevant here to ask if public pressure, the impact of NGOs and outrage over *potential* human rights violations can look and act like 'law-like' mechanisms and/or bodies?

What seems of particular import in the decision made by the Indian Environmental Committee to ban the entrance of *Le Clemenceau* to Alang was their invocation of the UN Basel Convention. The Basel Convention was a ratification, signed by 187 nations, which addresses the

[94] http://news.bbc.co.uk/2/hi/south_asia/4588922.stm
[95] Link to French supreme court case which I read through your advice on Google translator: http://www.courdecassation.fr/jurisprudence_2/civiles_classes_2987/
[96] In some form of poetic justice, *Le Clemenceau* is being dismantled or scrapped by the British. The British scrapping company has a 'twitter-like' blog on the happenstances related to the dismantling of this ship: http://www.ableuk.com/ableshiprecycling/q790.shtml

movement—flow—of hazardous wastes from developed nations to developing nations. In short the Basel Convention created a law-like document[97]—produced through and in conversation with other primary environmental documents—with the concern for health of 'states' and the environment. In its connection to and generation within the UN, the Basel Convention presents itself as a universal—that is it is positioned above any particular nation state and its demands apply to all; however, the mediation (in the form of application and/or 'practice') must be activated and enacted by the particular/individual nation state. The voiced concern by the document framers was clearly for the 'receiving' states[98] and their capacities to handle the waste supplied them. In terms of my attempt to practice a certain type of hermeneutics on this document, I read the body of this text as making a very clear gesture to include the environment and human beings in the same frame. This environmental-human hybrid[99] is covered in the first three sections of the preamble:

> Aware of the risk of damage to human health and the environment caused by hazardous wastes and other wastes and the transboundary movement thereof,

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[97] Looks considerably like law talking to itself about itself. The actual conversation that was happening was based upon he Declaration of the United Nations Conference on the Human Environment (Stockholm, 1972), the Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes adopted by the Governing Council of the United Nations Environment Programme (UNEP) by decision 14/30 of 17 June 1987, the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods (formulated in 1957 and updated biennially), relevant recommendations, declarations, instruments and regulations adopted within the United Nations system and the work and studies done within other international and regional organizations (Basel Convention Doc)

[98] Here I borrow the language of immigration discourse and reform to discuss the 'sending' and 'receiving' nations. I feel it appropriate to appropriate the language of sending and receiving as the hazardous waste does leave one nation and enter another. I intend as well to not give primacy here to people, the environment or the waste. As one of the concerns which I attempt to address in this paper being the actual embodiment by the earth's atmosphere, water, and land of hazardous chemicals as well as their contact and/or entrance into the bodies of workers.

[99] This clearly opens a space to think the ontology of the environment and the human, or, as I have merely hinted at, placing the human and the environment on the same plane of the 'natural.' Of course, much of this alludes as well to conceptualizations and enactments of natural law. It also begs whether or not human rights and rights deemed necessary to the environment can be examined on the same plane or with the same scale.

> Mindful of the growing threat to human health and the environment posed by the increased generation and complexity, and transboundary movement of hazardous wastes and other wastes,
>
> Mindful also that the most effective way of protecting human health and the environment from the dangers posed by such wastes is the reduction of their generation to a minimum in terms of quantity and/or hazard potential.[100]

In this frame we have the human, the environmental and the thing/object/commodity/waste-like thing[101] in the form of 'hazardous wastes and other wastes' all mixed together. The flow of the thing/object/commodity/waste from one 'state' to another 'state' seems to have the sound of a commodity-like thing in a flow. However, it also points back to my use of Butler on the body to position the body—taken here more broadly as the body of the nation or nation state—as a thing that is an open system and thus 'vulnerable' to the impacts of other bodies which can be either beneficent or malevolent. The language of the preamble of the Basel Convention is written to inscribe a safeguard against the malevolent (objects such as *Le Clemenceau)* entering the body in the form of hazardous waste. If I am reading this frame correctly, there is the universal-like category of capital (breaking of ship and its transformation into money) potentially harming the universal categories of the person and the environment. In their use of this document, the Indian Environmental Committee invoked the language of the universal right of the body of their people and their nation (including the general environment) to be protected from the dumping of

[100] http://www.basel.int/text/documents.html
[101] I use this awkward construction to show that the ontological status of the ship and its contents depends, entirely, upon who is viewing the object, what the desired ends to this view and ensuing practice or prohibition may be, and what invocation of national or transnational law may be invoked.

contagions either on its people or soil or water. The language of this document is written in the same tone and frame of the universal as well. It mirrors the universal language of documents such as the UN document on the Universal Conditions of Human Rights.

In turning briefly to the 1948 UN Document on Human Rights I point towards the language of the universal in this document inscribing rights due to humans, again, across borders of various nation states. The framing of the universal human subject in this document incorporates labor and labor conditions into the frame. I focus here primarily on aspects relating to labor and the human body in its corporeal form. Of particular import to the differences between the rights granted to the universal subject and those practiced on the ground in shipyards such as Alang are Article 1, Article 23:1, and Article 23:3. Article 1 of the UN Declaration of Human Rights reads, "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood."[102] Yet, is there freedom and a spirit of brotherhood in the yard at Alang? Article 23:1 states, "Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment." Finally, Article 23:3 reads, "Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection."[103] The idea of dignity, which most would consider breathing air in the workspace free of cancer-inducing agents to be constitutive of, is lacking in the sketches of working conditions at Alang that I have represented throughout this piece. We are able to clearly see how the shipbreaking industry becomes a reality in the space of the contradiction between these two articles. More

[102] http://www.un.org/events/humanrights/2007/hrphotos/declaration%20_eng.pdf
[103] ibid

importantly, however, shipbreaking at yards like Alang becomes possible in situations that *intentionally* go against or manipulate declarations such as those of Basel Convention or the Human Rights Declaration. It is at this scalar level that the abstracted, though single human subject is handled in rights discourse.

While these two articles are directed specifically at universal human subjects and their labor conditions, I examine two additional articles of the same document in an attempt to show how the UN Declaration of Human Rights proposes to handle the international community. The UN Declaration of Human Rights Article 28 states, "Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized." Yet, as I will show briefly in the following paragraph, an 'international order' is missing and 'rights and freedoms' are withheld from individuals under the legislative actions of the court systems in individual nation states. While the Indian nation flexed through its decision in the quasi-law-like, quasi-legislative body of the Environmental Committee, further court cases around shipbreaking at Alang reverse the dignified work accomplished in the legislative action related to *Le Clemenceau.* Further, Article 30 of the Declaration reads, "Nothing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein." By invoking sections of both of these documents, most specifically the Basel Convention which owes much to the precedent set by the 1948 Human Rights Declaration, the Indian Environmental Committee refused "Le Clemenceau" entry to the Alang shipbreaking yards. This was, in the true sense of the word, a *unique* and powerful gesture.

Refusing "Le Clemenceau" entry to the shipyard at Alang was not unanimously viewed as a victory for either the Indian people or for the environment. While Greenpeace and the Environmental Committee had worked, separately but in 'distanced unison,' to achieve this victory, the port authorities and the owners and laborers in various shipbreaking outfits saw this as a tremendous loss for business. Not only was this a multimillion dollar business loss in the immediate, but sending *Le Clemenceau* back to France also signaled that shipbreaking at Alang would meet the highest environmental and labor standards issued by the West.[104] Indian shipbreaking outfits at Alang, and their purported loss of business, signaled to interested parties that Alang is not a toxic waste grounds for either overtly, or clandestinely, sending vessels for 'end of life,' or shipbreaking activities. In the case with *Le Clemenceau*, the uncertainty of knowledge of the quantifiable weight—in tons—of asbestos aboard the carrier was the overarching reason the ship was told to return. In the arm wrestling match of capital and environmental-human rights the latter won out in this particular case.[105] Yet, Indian shipbreaking outfits at the Port of Alang feared that they would lose the edge they had worked so hard to maintain over their nearest competitor, Bangladesh.

A little over a year after *Le Clemenceau* was returned to France in 2006, India had a chance to decide anew on a second French ship that was decommissioned and available for scrapping. The

[104] I am reminded here of Dipesh Chakrabarty's (2000) idea of what it means to bring 'registers of Enlightenment thinking' to think the subcontinent of India. It alludes to debates about knowledge, its application, dissemination, and who chooses what knowledge and for whom in way similar to the questions Justin Richland (2010) raises in relation to Hopi Sovereignty and knowledge claims. Further the question of knowledge about environmental degradation, and the subsequent responsibility to act accordingly, comes up in much of the discourse of developing nations. Many 'becoming' industrialized/modern nations desire lesser restrictions so that they too—as they argue Western nations have already experienced—should not have to follow the high 'Western' standard that safeguard against pollution and conservation [at least in theory and in the law].

[105] The Basel Convention document clearly outlines that exact quantities of toxic waste must be documented, the ship must carry this documentation, and that all parties involved are obliged to follow a party of 'due diligence,' read as acting with and providing transparency with respect to the status, position, and quantity of waste.

second French ship was affectionately known as the *Blue Lady*, the longest passenger ship ever built. In pictures it looks strikingly similar to the *Queen Mary* with its black hull, white middle section, and dual orange-red stacks. Despite contestations by Greenpeace, invocations of the Basel Convention Articles by numerous indigenous and human rights organizations, in Decmeber of 2007 the Indian Supreme Court allowed *The Blue Lady* clearance to enter the shipyards at Alang.

The language used in the Indian Supreme Courtroom over the case of *The Blue Lady* might best be referred to as a language of sacrifice. The language used by the court smacks of loss and gain. The same type of universal 'loss and gain' that the French literary theorist, poet, and philosopher Helene Cixous claims that *we*, that is as human beings, are universally guilty.[106] What I refer to as the language of sacrifice that is used in the Indian Supreme Courtroom is what the judges refer to through the invocation of 'proportionality,' a part of the British legal system passed to the colony. With regard to *The Blue Lady* being an environmental hazard and a jeopardy to the health and lives of Indian workers, the court responds to the petitioner:

> It cannot be disputed that no development is possible without some adverse effect on the ecology and environment, and the projects of public utility[107] cannot be abandoned and it

[106] Cixous writes of this loss and gain as well as the idea of being fair: "[T]here is death. The misfortune or fortune—which will make our lives an unending struggle to be fair—is that *in losing we have something to gain*. Mixed loss and gain: that's our crime. This is what we are always guilty of, guilt we can't do anything about with these unexpected and terrible gains (11).

[107] The public utility referenced here points toward the estimated three hundred thousand jobs directly and tangentially related to activity at the Alang Port. This same type of attempt to calculate 'loss' and utility is heard in contemporary debate and legal hearings about the BP disaster in the Gulf of Mexico. It would also be interesting to expand around either of these cases with respect to Derrida's handling of calculation and justice under his second aporia: "Justice as law is never in never exercised as a decision that *cuts*, that divides. The decision does not simply consist in its final form, for example a penal sanction, equitable or not in the form of proportional or distributive justice. It begins, or ought to begin, by right or in principle with learning, reading, understanding, interpreting the

> is necessary to adjust the interest of the people as well as the necessity to maintain the environment. A balance must and has to be struck between the two interests. Where the commercial venture or enterprise would bring in results which are far more useful for the people, difficulty of a small number of people has to be bypassed. The comparative hardships have to be balanced and the convenience and benefit to a larger section of the people has to get primacy over comparatively lesser hardship.[108]

In short, the court tells the plaintiff there will be loss and gain. Here, it is called sacrifice. Sacrifice of the environment and ecology for 'projects of public utility.' The human and the environment must be adjusted to each other; which indicates that each has a distinctive ontology. Yet there must also be balance and equilibrium.[109] The phrases that catch one completely off guard are that '[D]ifficulty of a small number of people has to be bypassed. The comparative hardships have to be balanced and the convenience to a larger group of the people has to get primacy over the comparatively lesser hardship.' The referents seem to be mixed. Is this intentional? Is the difficulty the environment or the people in the environment who are the lesser hardship? The language is straightforward but it is not easy. It reads: Capital will triumph because there is no other way; People must eat and work to live in the present; We will roll the dice now against the health of these people in the future; Difficulty—read as death and health ailments—of a small number of people wins out in a cost/benefit analysis of environmental and

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rule, and even in calculating. For if calculation is calculation, the decision to calculate is not of the order of the calculable and must not be (1992: 24).

[108] http://judis.nic.in/supremecourt/helddis.aspx

[109] It is hard, if not impossible, to think of this without Durkheim's notion of the monster, equilibrium and the threat of anomie.

human rights injustices and trespassing against the articles of the Basel Convention versus commerce, labor, and development.

The Indian Supreme Court conceptualizes and bases the case of *The Blue Lady* on a tense exercise of finding balance in the highly fraught border of the priorities of development on the one hand and environmental/human protection and rights on the other. This form of the nation 'arm-wrestling itself in the dark'[110] articulates itself in the language of globalization and development discourse. In these discursive movements, the language of the court invokes India, self-reflexively, in the exercises of modernization and its own becoming as an 'emergent economy.' What the court document points toward as well are the manners in which the metaphorical arm-wrestling over the economic impact of shipbreaking creates a number of binaries common to the anthropological inquiry and anthropological exegesis: nature/culture; individual/group; universal/particular; self/other; human/inhuman. What I see as the greatest concern in these binary constructions is the divide between what one can read between the lines in the court documents, as I have attempt to do, about the human and inhuman or even the temporarily human. The human who lives within the contingent boundaries of an uncertain amount of time before an immanent death.

If environmental repercussions must be weighed and considered against a tension between the promises capitalist modernity brings with increased jobs and development, the person working in those jobs cannot be forsaken. Under the principle of proportionality, invoked in this hearing by the Indian Supreme Court, there is not mention of the free human subject of the aforementioned

[110] A phrase I borrow from the poet Yusef Komunyakaa. Komunyakaa used the phrase in a 13 part poem commissioned by concert musician Sasia Feinstein on the life of jazz legend Charlie Parker entitled "Testimony."

rights discourse. We only hear of the human as laborer in the register of employment: "When we apply the principle of sustainable development, we need to keep in mind the concept of development on one hand and the concepts like generation of revenue, employment and public interest on the other. This is where the principle of proportionality comes in." In short the principle of proportionality allows the Indian Supreme Court—which only references the environment, in terms of the material and not human or even a Latourian human-material hybrid member of an ecological environment—to move ahead with environmental degradation and contamination of human beings by known cancer causing agents in the name of proportionality, a proxy for development in the form of shipbreaking. If I read this correctly, the Indian government seeks to embed the human component into the industrial/commercial rather than into the biological/environmental. The example of logic given by the Indian Supreme Court is a quantification: breaking *The Blue Lady* will enable 700 workers to be employed and 41,000 metric tons of steel scrap would be made available. While no blood is let in the sense that Derrida writes through Benjamin, it seems important to at least question whether the Supreme Court of India's decision is a type of violence of "pure power over the living for the sake of extending life" or "bloody power over life for its own sake" (Benjamin in Derrida 1992: 62).

I have attempted to show how human bodies and material bodies are formed in space and time through discursive, environmental, material, and legal agents which point these bodies, always themselves contingent and vulnerable, towards an uncertain future in space and time. In my effort to accomplish this end I sketched a basic outline of colonialism and desire. I theorized the corporeal body through Judith Butler and the material object through Webb Keane. I then attempted to run these ideas through the ideal-typical subject I posited laboring in the

shipbreaking industry in Alang within the Gujarat state of India. In doing so I came to question not only the potential deleterious effects to health through breathing contaginous agents, but I also came to look at the ways in which this abstracted, asbestos breathing subject is still haunting the shipyards of Alang. Through examination of French and Indian court cases and law-like documents—including those issued by the UN through the Basel Convention and the Universal Declaration of Human Rights—several questions, not asked by shipbreakers or the global metal recycling industry: What does it mean to be human and how do the material conditions of the world mediate the type of human being one can and cannot be? I am attempting to ask not only what it means to be human, but more specifically what it means to be a human being and what standards of environmental qualities and laboring conditions one should be granted by the very nature of being a sentient being with the type of vulnerable open system that I read into and through Butler? This argument—and relevant questions—must be weighed and considered by the global scrap recycling industry. If the global scrap recycling industry is a *truly* green industry, its wields in one hand an environmental stewardship card and flashes the ability to save resources and conserve and save the earth; in the other hand, by the very nature of the recycling process—which inculcates a base node of marginalized collectors to work with an often contaminated third nature—it wields an axe that has the potential to drop and cause grave risk to the health and well-being of those involved in the collection and dismantling of the scrap.

Conclusion:

Towards a Politics of Hope—New Architects, New Possibilities

By way of conclusion, I turn to a politics of hope, possibility and architecture for the production, consumption, and disposal of commodities. This dissertation has taken a global commodity circuit of scrap metal recyclables and used the materiality and commoditization of scrap metals as a type of theory machine. In doing so, I have dealt with—theoretically and ethnographically—three types of nature: first nature in the form of elements/ores; second nature in the form of the consumption and expending of commodities; and third nature in the material form of this detritus which is a mix of the material properties of first nature out of which the commodities in second nature were composed. I suggest, through a variegated literature, that the architecture of hope and possibility is within human purview for a more-environmentally sensitive approach to the production of commodities: from their extraction in first nature; to their use in second nature, and ultimately the recycling of their third nature.

Paul Hawken, in *Blessed Unrest*, suggests that "*Nature recycles everything*; nothing is wasted, nothing is thrown away because there is no 'away.' All natural processes are cyclical, and every scrap of matter, atom, and molecule is reused and repurposed into new forms of life" (179). In the context of recycling, humans mimic this "natural" decomposition process through which, in strictly organic forms of matter, first nature recycles first nature to end up with another version of first nature. With regards to metals—as this ethnography has shown—humans collect, refine and reproduce metallic forms of post-consumptive waste—using decomposition processes designed in second nature (balers, shredders, smelting devices, and finally molds to reshape the metals in factory production) to mimic the decomposition processes organically present in first nature. Recycling mimics the domain of decomposition (relations) in first nature through domestication of these processes through human labor and machines—products of second

nature—that have the material resonances of first nature in their composition. The goal of this activity, and in the case of scrap metal recycling's multi-billion dollar global economy more specifically, is to take these objects from third nature and bring them back to the closest material and chemical composition in which they last existed in first nature, and usher them back into a new life course in second nature as a commodity form. The environmental benefits of this process, specifically related to steel, are that recycling metals allows for 100% retention of the original material composition of the metal, reduces landfills reaching capacity, and the reduction of high and damaging CO2 levels in the atmosphere.

The years of fieldwork that I undertook to track a commodity circuit of scrap metal recyclables stretching from Chicago to Mumbai, India, suggests, at its outlay, that recycling can be theorized as a cycle of cycles within cycles that has seemingly endless iterations. Little doubt remains, that the extractive practices exacted by humans on first nature to produce capital and capitalisms, has radically altered social, cultural, material, and biological life and left behind not only above ground mines of third nature but also created landfills where third nature is sent back into the earth. Everything that humans do leaves a footprint in first nature; that is even down to benign acts like breathing, a seemingly neutral activity. However, the imperialism that humans have enacted upon first nature to produce capitalisms cannot resolutely be viewed as only destruction.

As Dipesh Chakrabarty suggests in *Provincializing Europe* (1999), there are two (and I suggest more than two) histories of capital. Histories of capital under his conceptualization of History 1s and History 2s[111] allow for multiple ways of human belonging. In short, what Chakrabarty

[111] The template, but not the enumeration, which Chakrabarty borrows, follows from Arjun Appadurai's idea of Culture 1 and Culture 2 in his text *Modernity at Large* (1996).

suggests is that History 1s are those that follow the teleological spin of capital—Marx's capital—and History 2s are those that follow affective, local senses of belonging that cannot be sublated to History 1s. In following this conceptualization of History 1s, one might also say that in this more nuanced space, there are ways for subjects to employ alternative, divergent and creative ways of thinking and different ways of belonging to nature, what Hiro Miyazaki (2006) would call a politics of hope, or "the radical reorientation of knowledge" (138-140). In similar fashion, David Harvey, in *Spaces of Hope*, sees humans as possible of generating alternative architectures to those present in capitalist modernity. Harvey, employing Marx's example of the architect and the bee—where Marx alludes to the superiority of the architect over the bee in that man's design happens in his mind before in the material world. Harvey, laughingly, concedes that scientific research has shown the bee's ability to labor and design to be far superior, productively, to any architect, the sentiment, nonetheless, is to position humans in a space of possibility for design: "To construe ourselves as 'architects of our own fate and fortunes' is to adopt the figure of the architect as a metaphor for our own agency as we go about our daily practices and through them effectively preserve, construct and re-construct our life-world" (200). For Harvey this role of being architects is also, very much part and parcel of how we treat nature and human life through the type of politics to which we subscribe: " The construction of some broad political movement around the whole issue of 'responsibility to nature [first nature] and to human nature [second nature]' requires negotiation and translation between diverse habits of mind that derive from the uneven ways in which material life, social practices, and knowledge systems are orchestrated and organized" (223).

Following what Harvey calls "responsibility to nature," Ursula Heise suggests a particularly idealistic and universal stance towards the planet and nature. In *Sense of Place and Sense of Planet* (2008), Heise is concerned with the ramifications of globalization on space and place. Through conceptualizing deterritorialization[112]—similar to Harvey's concept of the "annhilation of space through time," borrowed from Marx, or "time-space compression" (2000: 23-25; 57-59)—Heise argues for reterritorialization through a globally-based acknowledgement of the care of nature through objectifying the planet as a global universal. Heise calls for U.S. environmentalism and ecocriticism to view, in more nuanced fashion, the manners in which local places, cultures, and ecosystems are enveloped in the global. Heise's suggestion—bordering on cultivating and identifying a new type of global subjectivity fashioned out of a global band of Harvey's architects and Miyazaki's knowledge-reorienters—is for a sense of planet. Sense of planet, for Heise, entails, "A cognitive understanding and affective attachment to the global….is intended as a call to ground….discourses in and thorough cultural and scientific understanding of the global—that is as environmentally oriented cosmopolitanism or "world environmental citizenship" (59).[113]

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[112] Heise's concept of "oriented cosmopolitanism" or "world environmental citizenship" does call for a highly nuanced form of the subject position. She borrows some of this language of the subject from Jean-Francois Bayart and his text *Global Subjects: A Political Critique of Globalization* (2007). In Heise's purview, deterritorialization assumes "that the average daily life, in the context of globality, is shaped by structures, processes and products that originate elsewhere" (p. 54). Reterritorialization, a concept Heise sees as subscribed to by environmentalists, entails "that individual's existential encounters with nature and engagements with intimately known local places can be recaptured intact from the distortions of modernization" (ibid). As indicated in the title of this text, Heise sees environmentalists need to overcome thinking about the poles of local and global to embrace the universal conceptualization of "sense of planet," a shared space that is neither global nor local, but all that is inclusive of either ends of the poles as well as all that lies between. For reading on what the subject position of the

[113] See also Jake Kosek who refers to environmental citizens being molded "when understandings and experience of nature become grounds for membership in a community, a basis for making claims and the legitimizing authority for an individual to speak for nature" (177). Kosek does not view this citizenship in the same manner as Heise. Rather than see this as a radical possibility for hope and cosmopolitan awareness of nature, Kosek asks us to turn to the deeply racialized history of environmentalism in the United States to see its politicized tenets and exclusionary matrices for underrepresented groups. To invoke environmental citizenship, for Kosek, is to invoke one's class status and therein to invoke one's power through political discourse.

If we are to take Heise's call for the production of "world environmental citizens" seriously then recycling, a form of care for the end-life and future life of spent commodities, might be offered as one indices of this new subjectivity. Recycling is a solution that can be practiced at the level of the individual or household, and in many more places throughout the globe municipal organization and private companies are making household recycling more readily available. However, one of the major culprits, thwarting the type of environmental citizenship for which Heise calls, is industry. Planned obsolescence in the design production and manufacturing of commodities—from iPods to automobiles to the wrappers around food—will, according to Paul Hawken (1993), only be eradicated when there is economic incentive at the level of manufacturing, coupled with governmental legislation, to use recycled materials in the production of new commodities and to ensure that these new commodities are, ideally, immanently and completely recyclable at their end life (72-73). In following Marilyn Strathern,[114] I ask how these two scales at the level of the individual recycler and at the level of the industrial recycler can be run side by side? Or put slightly differently, how can the scale of industry produce commodities that at once hold the scale of economic profit while also "scaling up" to the demands of globally-based needs to produce immanently and completely recyclable commodities? Concurrent to this "scaling up," how does industry "scale down" to the individual purchaser of this commodity to bring them, not only the materiality of a recyclable commodity, but also the knowledge and avenues for recycling commodities and inciting this abstract consumer to "scale" back up to the global need to channel products into recycling circuits?

[114] In an article entitled, "Environment Within: An Ethnographic Commentary on Scale" (2000), Strathern writes, "On the one hand, scale matters: to perceive the effects of human activity on a world imagined as an outside or encompassing environment is to take responsibility for such activities. It is equally the case, on the other hand, that scale does not matter: imagining the dimensions that responsibility draws, as it were, the environment within ourselves" (65)

William McDonough & Michael Braungart's *Cradle to Cradle: Remaking the Way We Make Things* (2002) does not implicitly call out the ills of what is commonly referred to as industrial capitalism. Rather, their call is to make the commodities we consume more reflective of the way nature produces rather than the manner in which production in post-Industrial Revolution produces by ignoring the fragility of nature and its ecosystems (26). Their proposal, know as cradle-to-cradle stands in staunch opposition to the cradle-to-grave approach, wherein commodities are produced, often with planned obsolescence,[115]and through which environmentally degradatory extraction of raw materials and manufacturing are yoked to a post-consumptive life of the object where no possibility exists for the spent product accept for a journey to the landfill. Conversely, McDonough & Braungert's proposal of cradle-to-cradle calls for "[H]umans to learn the highly effective cradle-to-cradle system of nutrient flow and metabolism in which the very concept of waste does not exist" (104). To produce no waste, for McDonough & Braungert, is contingent upon the design process—from packaging to product—in which waste is absent and form follows evolution not function. Cradle-to-cradle production also means following the two-fold metabolism of nature: 1). Biologically through the cycles of nature (biosphere) and 2). Technically through cycles of industry inclusive of removing technical materials from natural places (technosphere). In short, this proposal is to produce with biological materials that biodegrade and return to the natural biological cycle of the biosphere (nature)

[115] Planned obsolescence merely means that design and the subsequent manufacturing of commodities is geared towards intentionally short life cycles to ensure that these commodities have limited longevity and functionality so that users needs to purchase more products in a shorter time span. There are of course counter balances to this example where companies such as L.L. Bean of Maine and Patagonia of California produce articles of clothing and other consumer goods with the highest integrity, materials and craftsmanship in ethically monitored factories in which the commodities/goods are guaranteed, without question, for the life cycle of the object. While admirable, and in keeping with cradle-to-cradle ethics (often manufactured with recycled and infinitely recyclable materials) these companies produce products that are outside of the price point affordable to average American's who need a rain jacket or pair of boots or canteen.

which are resolutely kept separate from elements of industry in the biosphere for which McDonough & Braungert call for the industrial recycling of these technical materials, because it is one of the most successful forms of recycling, the example they offer is the automobile industries recycling of metals, specifically, and plastics less generally, which are as near to 0 waste as any industry (110-111).

Paul Hawken, a Sausalito businessman (Smith & Hawken) and writer, has composed three widely-read popular audience books which overlay some tenets of environmental studies with economics. In *Natural Capitalism* (1999), Hawken tracks the disappearance of nature in the form of natural capital: minerals, plants, birds, fish, mountains, wildlife, ecosystems and species. (2-6). What, in Hawken's opinion, industry has been markedly successful in is transforming these elements of natural capital—with the aid of human capital, financial capital, and manufactured capital (infrastructure, tools, factories)—into the "stuff" of our daily lives: consumer goods, housing, medicinal products, and even cities themselves. Hawken questions what not only nature but human life would look like if we asked a pertinent question about the economy: "What would our economy look like if it fully value *all* forms of capital[116], including human and

[116] To answer this question, from a genre of writing that is somewhat similar to Hawken's own though making its way into some academic circles, is Vendana Shiva's *Earth Democracy*. Written in highly charged manifesto-like language, Shiva calls for three types of economy and capital to be recognized by the global community: economic, natural, and subsistence-based. The economic economy is that of global capitalism; where the means of production are controlled by the few, and as her text elucidates, great divisions—in the form of obfuscation of truths as well as material realities—separate the global North from the global South. Shiva's emphasis in this text rests in cultivating and framing the two neglected economies. First is nature's economy (or the world's dominant producer): this is the primary economy inclusive of the ecological balance of the natural world, its biodiversity, balance, unequal distribution of resources across the earth's topography—yet plentiful enough to supply the needs, but not the greed of every subject in the global community. The second neglected economy is the sustenance economy: the economy of labor and human beings. This economy emphasizes a balance and equilibrium between itself and the natural economy; both of which are repeatedly threatened by the market economy (13-18). This type of architecture of multiple economies, is remarkably similar to what would enable Heise's "global environmental citizen" to appear. It is premised on the creation of universals and heavily emphasizes first nature as a universal to be shared throughout the global community, which would thus also produce a different universal subject.

natural? To answer this question Hawken reveals a nature—a highly efficient producer and recycler reliant upon complex feedback loops governing its system regulation and industry; these are the very feedback loops for the most part have historically ignored messages from the nature—and have become highly successful at transforming nature (oil, wood, minerals, natural gas) in the form of waste (48-49). From the redesign of cars to businesses rethinking what production means, Hawken's book is full of hopeful possibility for the future if the frames of business are recalibrated to examine the expense that modern industrial capitalism is having on nature.

Ultimately, the question that remains unanswered in respect to these less academic texts rests in whether or not recycling is a process that is merely folded into the life course of capital. If so, does some of the charge of "doing good" wear off? If the environment is tended to by industry—from production through cradle-to-cradle programs that might be run by either industrial or governmental apparatuses—what type of future and what type of subject are formed in this matrix? What type of global commons of first nature will be maintained?

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