

FLAME OF THE RED FLAG: COGNITIVE ECOLOGIES OF  
THE PARIS COMMUNE

by

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DEDICATION

“To All Those  
who, victims of social injustice  
took arms against a poorly made world  
and formed,  
under the flag of the Commune,  
the great federation of sadness”

-Julles Valles,  
*L'insurge*,  
Paris, 1885

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Finally, I would like to recognize all the Parisians that suffered so terribly in the spring of 1871. Over the course of my research, many of them have become dear and close companions. My sympathy for them is not a political position but a human one, a fundamental belief that all peoples have a right to self-determination over their lives. The people of Paris suffered a brutal atrocity at the hands of state power for attempting to gain such agency. As historians, we should seek to understand the complexities of such events with compassion, nuance and balance. However, we should never allow the addition of centuries to mute the horror of past crimes.

## TABLE OF CONTENTS

|                                                |     |
|------------------------------------------------|-----|
| 1. INTRODUCTION: MARTYRS ENSHRINED .....       | 1   |
| 2. INDUSTRIAL ENTANGLEMENTS.....               | 15  |
| Apostles of a New Religion .....               | 15  |
| Holy Land .....                                | 24  |
| The Mecca of Revolution.....                   | 27  |
| Rendering Caesar .....                         | 31  |
| 3. A MATTER OF ENERGY .....                    | 34  |
| Divergence .....                               | 34  |
| Metabolic Collapse .....                       | 38  |
| Urban Entropy.....                             | 46  |
| 4. SELECTION IN AN ADAPTIVE LANDSCAPE .....    | 50  |
| Radical Transformations.....                   | 50  |
| Selective Services .....                       | 54  |
| Revolutionary Adaptations .....                | 61  |
| 5. COGNITION IN THE CITY .....                 | 64  |
| Cognitive Materials.....                       | 64  |
| Epistemic Engineering.....                     | 69  |
| New Ways of Thinking.....                      | 72  |
| Reorganization .....                           | 73  |
| 6. EMERGENCE .....                             | 76  |
| Revolt.....                                    | 76  |
| Revolutionary Configurations.....              | 78  |
| From the Simple to the Complex .....           | 81  |
| Fear and Synesthesia in Lost Revolutions ..... | 84  |
| 7. FLAMES.....                                 | 87  |
| Collapse.....                                  | 87  |
| Executions.....                                | 92  |
| 8. CONCLUSION: SOOT FROM THE FLAMES .....      | 96  |
| REFERENCES CITED.....                          | 106 |

## ABSTRACT

This thesis addresses the longstanding intellectual framework that has divided mind from matter, agency from environment and humanity from nature. In an attempt to break down these dichotomies this paper explores the Paris Commune of 1871 as a case study in cognitive ecology. The paper hopes to answer the question of how people transform their societies without supervision or command from a central authority. It argues that cities are selection driven adaptive landscapes, co-evolutionary structures that emerge to facilitate and sustain dense human habitation through the material organization of cognition. This study seeks to answer questions about the entanglement of environment, social organization and cognition. Specifically the ways in which ecological dynamics and selection mechanisms affect social structure; how individual agency translates into collective action; and the ways in which cultural materials feedback into cognitive processes and social activity. By investigating flows of energy, matter and information during the Siege and Commune of Paris from 1870 to 1871 the analysis attempts to show how human cognition intersects with its environment to form self-organizing, complex adaptive systems. The research utilizes a number of theoretical frameworks to explore the evidence; Material Engagement Theory, Extended Mind Theory, Entanglement Theory, Developmental Systems Theory, Panarchy, and Complexity Theory. This paper demonstrates that contractions in energy, matter and information flows created by the Prussian siege triggered selection mechanisms favoring specific social institutions while disempowering others. Further, it shows that cognitive niche construction facilitated social revolution in the city. Finally, it argues that cultural materials helped to distribute cognitive processes in ways that enabled collective revolutionary action. This includes one clear example of a positive feedback loop mediated through physical objects. In conclusion, this paper shows that the most important feature of urban environments is the ability to facilitate individual adaptations to ecologies dominated by the physical and cognitive presence of their own species. The products of human cognition, circulating as materials in socio-cognitive ecologies, function to entangle ideas and relationships into the physical environment and organize behavior. Thus, human societies do not fundamentally break from the natural world but express the developmental properties of human evolution.

## INTRODUCTION: MARTYRS ENSHRINED

*“Working men’s Paris, with its Commune, will be forever celebrated as the Glorious Harbinger of a new society. Its martyrs are enshrined in the great heart of the working class.”*

*-Karl Marx*

*Address to the International on the Civil War in France,  
London, May 1871*

In March of 1871, Parisians rose up in the largest urban insurrection of nineteenth-century Europe, the Paris Commune. In the wake of the catastrophic Franco-Prussian War (1870-1871), after nearly five months of freezing and starving through siege and a coup d'état by monarchists appearing imminent, a multitude of local organizations and communities operated Paris from the ground up for seventy-two days. Parisians formed workers cooperatives, neighborhood associations and women's unions, creating their own municipal infrastructure to meet the needs of their communities. Highly democratic elections brought a working class population into the political process. The Commune produced and distributed goods, minted coins, organized medical facilities, established schools and newspapers, passed social measures, collectivized factories, and generally maintained the city. Paris quickly developed a relatively self-sustaining and radically new pattern of social organization. Five days after officials declared the start of the Commune, fighting broke out with the National Assembly at Versailles. For over two months, the organizations that emerged out of the rebellion supported Paris until Versaillais troops gained access to the city's streets. For the seven days of *la Semaine Sanglante* (the Bloody Week) Parisians and soldiers spilled blood across barricades and boulevards as the city burned. In the aftermath, soldiers executed as many as 30,000 in the streets during one of nineteenth-

century Europe's largest massacres. The aristocratic observer Edmund Goncourt declared:

The bleeding has been done thoroughly, and a bleeding like that, by killing the rebellious part of a population, postpones the next revolution by a whole conscription. The old society has twenty years of peace before it, if the powers that be dare what they are free to dare at the moment.<sup>1</sup>

Later, police condemned to death, imprisonment or deportation nearly 13,450 participants of the Commune.<sup>2</sup> In doing so, officials crushed one of the most extensive and radical social experiments in history.

In the wake of the Commune scholars raced to explain the meaning of the episode. Reactionary interpretations framed it as a struggle between order and the orgiastic violence of the “dangerous classes” or that the nefarious “reds” had led the ignorant and malleable lower classes astray. At the same time, the meaning of the Commune intertwined with the culture of the revolutionary left; romantics wrote eulogies and poems, and theorists penned tracts analyzing the Communes importance. There were deep divisions in the interpretations of events even among those revolutionaries that had participated. Some argued that it validated Karl Marx, anarchism, and a multitude of other left leaning interpretations. Blanquist revolutionary Gaston Da Costa (1850-1909) argued that the insurrection was, “essentially political, republican, patriotic, and, to qualify it with just one epithet, exclusively Jacobin.”<sup>3</sup>

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<sup>1</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 194.

<sup>2</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 100.

<sup>3</sup> Gaston Da Costa. "The Commune Lived." In *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 174.

The debates over the Commune's nature have continued with modern historiographies displaying a great variety of interpretations. Commune historian Martin Philip Johnson has divided explanations of the Commune into one of two general "schools" composed of political and social interpretations.<sup>4</sup> On the one hand, the political interpretation views the Commune as a response to the ravages of the Prussian siege and the insensitivities of the government, a position exemplified by Alistair Horne's *The Fall of Paris*. On the other hand, social interpretations have sought deeper patterns rooted in the Second Empire (1852-1870) and France's overall social and economic development. In other words, the question has largely been whether the Paris Commune was a result of the siege or society. Structural Marxist accounts such as David Harvey's have reified the class-based narrative of the Commune's development from the flows and contradictions of capital during the Second Empire.<sup>5</sup> Specifically, such analyses have focused on the implementation of the Haussmann Plan, which had reconstructed the core of the city. Post structural interpretations have focused on how Haussmann's reorganization of Paris reshaped urban networks and space in ways that alienated working class Parisians. Roger V. Gould has rejected the class conflict account and argued that the Commune was essentially a conflict between the Parisian Community (and more specifically its neighborhoods) and the State on the issue of municipal liberties. For Gould the conflict emerged through organizational

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<sup>4</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 9.

<sup>5</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 308.

forms that favored specific “participation identities” or the ways in which individuals understand their roles and relationships in society through institutional settings.<sup>6</sup>

However, it was Karl Marx who left an indelible stamp upon the Communes interpretation. He claimed the Commune was a harbinger of the Proletarian revolution and a confirmation of his theories. Consequently, the Commune entered deeply into Marxist mythology. Lenin counted the days that the Russian revolution exceeded those of 1871 and the Soviets shrouded his body in a Communard flag upon his death. Bolsheviks celebrated the 50th anniversary of the Commune the day after crushing the citizens and anarchists of the Kronstadt rebellion, and even renamed one of the captured battleships the *Parizi Kommune*. Indeed, the Commune was so sacred an event that nearly a century later the Voskhod I carried a Communard ribbon into space.<sup>7</sup>

Though many histories of the Franco-Prussian war recognize the Commune’s impact upon socialist thinking, they generally consider it of less importance than how the war both prefigured the First World War in its execution as well as the way in which the annexation of Alsace-Lorraine helped create the conditions of 1914. In short, the global war that succeeded the Commune overshadowed it. However, the Commune represented a major transition in radical thought at the end of nineteenth century, one in which the economic and political agenda of Marxism ascended and remained elevated until the closing decades of the twentieth century. If the *Guns of August* were an inheritance bequeathed in part by Otto von Bismarck and Louis Napoleon’s war, the *Ten Days that Shook the World* were descendants of Marx and the Commune. It was

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<sup>6</sup> Roger V. Gould, *Insurgent Identities: Class, Community, and Protest in Paris from 1848 to the Commune*, (Chicago: University of Chicago Press, 1995), 14.

<sup>7</sup> Alistair Horne, *The Fall of Paris: The Siege and the Commune 1870-71*, (London: Penguin Books Ltd, 2007), 433.

not until the publication of *The Civil War in France* in 1871 that Marx started to gain widespread recognition. In the same sense that the Franco-Prussian War prefigured the First World War, the Paris Commune foreshadowed twentieth century socialism. There is validity to arguments against the Commune's interpretation as a socialist revolution in that socialist frameworks cannot fully explain its dynamics. Nonetheless, it is undeniable that the Commune proved a nascent form of modern socialism. It opened up political and social space in which a multitude of nineteenth-century discourses and practices were able to intersect, allowing a number of concrete features of socialist political power to emerge.

Before the Commune the Anarchist philosopher Pierre Joseph Proudhon had dominated socialist theory in mid-nineteenth century Europe. In 1872, Marx expelled Mikhail Bakunin and other anarchists from the fifth congress of the International Workingmen's Association. In the aftermath of the Commune, Anarchism and Marxism crystallized into distinct trends and became divergent movements in Western Socialism. Anarchism would provide an important alternative to Marxism, with major Anarchist revolutions occurring in both the Ukraine and Spain as well as powerful anarcho-syndicalist movements organized throughout the industrialized world. Nonetheless, the dominance of Marx's ideas in the wake of the Commune is incontrovertible. In many senses, Marx is one of history's great religious prophets, offering both a cosmology of the industrial world as well as hope for its redemption. It was a vision so powerful that for much of the Twentieth century nearly two-fifths of the world's population lived under Marxist states.<sup>8</sup> However, it was in the Passion of the Commune that Marxism found both its crucifixion and the promise of resurrection.

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<sup>8</sup> Peter Singer, *Marx: A Very Short Introduction*, (Oxford: Oxford University Press, 2000), 1.

The various accounts of the Commune all contain legitimacy; it was both political and social to use Johnson's distinction between the interpretive frameworks. It was material and symbolic, and its sources lie deeply in the social and economic forces that shaped French society. Undoubtedly, the siege of Paris, and the political machinations of Adolphe Thiers' government, were its catalysts. Yet, there is another theoretical framework in which to understand the nature of the Paris Commune: as an inherently ecological phenomenon or the organic transformation of a society emerging from the reorganization of Paris' physical, cognitive environment.

Marx wrote in *Capital* that, "A spider conducts operations which resemble those of the weaver, and a bee would put many a human architect to shame by the construction of its honeycomb cells. But what distinguishes the worst architect from the best bees is that the architect builds the cell in his imagination before he constructs it in wax."<sup>9</sup> The view that the human mind has fundamental qualities that separates it from nature has deep roots within the western tradition. The Book of Genesis claims that language gives humans dominion over nature, while Plato argued that the material world was the product of a higher, abstract reality of ideal forms. Descartes, for his part, profoundly shaped western discourse with his claim that mind and matter were fundamentally separate substances.

This division of mind and matter has created an intellectual framework that posits a radical break between the environment and human agency. Thus, the beehive is deemed natural, while the products of architecture are something wholly different, "man made." Marxist scholar Raymond Williams argues that this "alienation" of nature

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<sup>9</sup> Karl Marx, and Ben Fowkes, trans. *Capital. Vol. I.* (London: Penguin Books, 1990), 284.

depends upon a “very singular abstraction; the abstraction of man.” For Williams, “Nature has to be thought of... as separate from man, before any question of intervention or command, and the method and ethics of either, can arise.”<sup>10</sup> In the context of the twenty-first century, as ecological instability and resource conflicts enter a new and dramatic stage, it is more pressing than ever to reconcile the alienation between humans and the environment.

There are well-founded suspicions in the humanities about arguments for “material reductionism.” However, this paper does not seek to “reduce” human experience and agency to physical and biological patterns. Rather, it seeks to analyze those patterns as points of departure, to understand how they form the basic structure from which human complexity emerges. In neuroscientist Iain McGilchrist words, “even if it were possible for mind to be ‘reduced’ ... to matter, this would necessarily and equally compel us to sophisticate our idea of what matter is, and is capable of becoming.”<sup>11</sup> It is critical to understand the way in which ecological dynamics entangle human beings and how human presence creates new layers of complexity, which defy simplistic dichotomies of humanity and nature.

There is probably no greater symbol of the perceived separation between humanity and nature than the city. Western culture views the urban form as a technological paragon, the ultimate materialization of human rationality, agency and progress. Western cultural narratives consider the city as a virtue; to be civil, civilized, and a citizen all come from the Latin word “civitas” for city. Perceived as an artificial environment in which nature recedes to the periphery, the city is one of the central icons

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<sup>10</sup> Raymond Williams, “Ideas of Nature” in *Problems in Material Culture*, (London: Verso, 1980), 75.

<sup>11</sup> Iain McGilchrist, *The Master and His Emissary: The Divided Brain and the Making of the Western World*, (New Haven: Yale University Press, 2009), 7.

in the division of humanity from the environment. It is the banishment of the “nasty and brutish” world by what is civil that has classically been viewed as the city’s greatest attribute. Yet, is there truly a radical break between the city and the beehive, or is it a difference in degree rather than a difference in kind? Natural selection had largely stabilized the human species long before the first sedentary societies began to develop. Cities emerge as complex assemblages of materials and processes in which the most important component is the human body. The first cities developed as human populations became increasingly sedentary and dense with intensified food production. This shift to cultivating food, most associated with but not limited to agriculture, allowed human populations to occupy new ecological niches by moving “down the trophic pyramid.”<sup>12</sup> The form of a city takes shape, in part, through the ways in which human bodies inhabit space. In turn, for the structure of the city to survive it must be able to sustain human physiologies with a degree of adequacy. In other words, cities and human bodies shape one another in a multitude of feedback patterns. What becomes evident is that the evolution of the human body is entangled with the form of the city.

However, the view that the unique attributes of the human mind creates an agency that fundamentally separates human actions from the world continues to uphold the argument for a radical break between humans and nature. Yet, human cognition emerged through natural selection in an ecological context. Historian Daniel Smail points out, “The existence of brain structures and body chemicals means that predispositions and behavioral patterns have a universal biological substrate that simply cannot be ignored... the behaviors that are shaped by predispositions and emotions are

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<sup>12</sup> Mary C Stirner, and Gillian Feeley-Harnik, “Energy and Ecosystems” in *Deep History: Architecture of Past and Present*, eds. Andrew Shrylock, and Daniel Lord Smail, (Berkley: University of California Press, 2011), 83.

often plastic, not hardwired.”<sup>13</sup> It is the adaptive plasticity of human cognition and behavior that has created the process termed history. It is the view of this paper that cities and human societies generally are “cognitive ecologies.” Cognitive scientist Edwin Hutchins first coined the term cognitive ecology to show that, “an understanding of cognitive phenomenon must include a consideration of the environments in which the cognitive processes develop and operate.”<sup>14</sup> The term cognitive ecology and its methodological perspective allows for a point of ingress in which to break down dichotomies of mind and matter, humanity and nature. Geographer Yi-Fu Tuan’s discussion on the relationship between spatial knowledge and perception of the environment among the Inuit provides an excellent example of the dense coupling of cognition to the environment in which it emerges:

“Eskimos, to survive, have refined their perceptual and spatial skills. When all landmarks disappear in mist and driven snow, Eskimos can never the less find their way by observing relationships between the lay of the land, types of snow and ice crack, the quality of fresh air (fresh or salt), and wind direction.”<sup>15</sup>

The concept of cognitive ecology is part of a broader trend in the theory of mind that seeks to understand human cognition as embodied and extending into the material environment. Archaeologist Ian Hodder explains, “according to a radical interactionist view, cognition is ‘spread out’ across brain body and world. The external world provides constituents of cognition, and material culture and the archaeological record are involved in a distributed cognition.”<sup>16</sup> Theories such as philosopher Andy Clark’s

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<sup>13</sup> Daniel Lord Smail, *On Deep History and the Brain*, (Berkeley: University of California Press), 114.

<sup>14</sup> Edwin Hutchins, “Cognitive Ecology,” *Topics in Cognitive Science* 2 (2010): 706, accessed August 23, 2014, DOI: 10.1111/j.1756-8765.2010.01089.x

<sup>15</sup> Tuan, Yi-Fu. *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 2008), 79.

<sup>16</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 35.

extended mind and cognitive archaeologist Lambros Malafouris' material engagement all explore how material environments provide "cognitive scaffolding" that organizes thinking processes. A growing body of research on the role of embodied action and materiality expands upon this. Ian Hodder's theory of entanglement reifies this trend stating that, "human-thing entanglement can be seen simply as environments in which genes and cultural traits circulate."<sup>17</sup> In the light of these emerging frameworks, the investigation of history can shift from cognitively reductionist arguments about human agency to embrace the profound complexity of humanity as an organic phenomenon. In his approach to developmental systems theory anthropologist Tim Ingold describes history as:

A continuation into the field of human relations of a process that is going on throughout the organic world. Put in the most general terms, it is a process in which organisms or persons come into being with their particular forms and capacities and in which, through their environmentally conditioned activities, they condition the development of other organisms or persons which they relate.<sup>18</sup>

The term cognitive ecology directly addresses one of the key concerns of this paper, the relationship between human cognition and the material environment in the emergence of social organization. To understand how the cognitive ecology of the Paris Commune emerged from the environment, this paper will analyze the city as a complex adaptive system. Physicist Neil Johnson gives a basic definition: "The common elements typically include the concept of an ecology of interacting agents... moving on some complex dynamical network, and indeed their own actions and evolution may

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<sup>17</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 148.

<sup>18</sup> Tim Ingold, "Beyond Biology and Culture. The Meaning of Evolution in a Relational World," *Social Anthropology*, 12, no. 2 (2004): 218.

themselves affect the network's structure and future evolution.”<sup>19</sup> Critical to this investigation is assessing the flows of energy, matter and information in the city at the time of the Commune. Investigating how these three key features intersect and produce self-organizing feedback allows us to understand how processes of selection produce cognitive environments and make certain forms of hybrid and collective agency possible. This paper recognizes agency as distributed through networks of human and non-human actors. Lambros Malafouris clarifies, “the argument is that agency is not a property but the emergent product of the ‘irreducible tension of mediated activity’”<sup>20</sup>

Cognitive ecologies such as cities must also be considered social ecologies, environments composed of networks of cognitive agents. A key question is how individual capacities and agency translates into collective, self-regulating social wholes. Furthermore, human agents have certain physiological requirements. Here we see that, while cities are socio-cognitive ecologies, they are also ecologies in the stricter biological sense as well. The urban structures sustain and facilitate the interaction of vast numbers of human bodies, bodies that consume resources and excrete waste, that need to regulate temperature, sleep, reproduce and so forth. Bodies that are also incredibly adept at communicating, problem solving and forming powerful bonds. Thus, we can begin to see cities as co-evolutionary structures that emerge from human adaptation to environments generated by dense human habitation. Urban systems are unique ecologies that emerged to sustain concentrated populations by organizing and metabolizing vast flows of energy, materials, and information moving through networks that extend far beyond the immediate boundaries of the city.

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<sup>19</sup> Neil Johnson, *Simply Complexity: A Clear Guide to Complexity Theory*, (London: One World Publications) 213.

<sup>20</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 147.

Understanding how societies' couple to their environments in ways that support the physiological needs of the human body allows us to understand the role of cognition and collective agency in structuring human society. As with any environment, cities provide a distinct cognitive context for humans occupying them. However, the environmental pressures that the city places upon the individual are unique in the respect that they have taken shape to sustain the human interactions from which they emerge. To reframe this, one of the most important features of the urban environment is its ability to facilitate the adaptation of the individual to an ecology dominated by the physical and cognitive presence of its own species. In these terms, cities are exceptionally dense socio-cognitive ecologies that create new patterns of biological organization. Thus, human societies do not fundamentally break from the natural world but are a developmental expansion of human evolution. This is in keeping with Tim Ingold's assertion that we can understand organisms, "not as a discrete, pre-specified entity but as a particular locus of growth and development within a continuous field of relationships."<sup>21</sup> Ecologies are networks of emergent relationship that develop through various forms of feedback. More succinctly, ecologies are selection driven adaptive landscapes and so too are cities.

The Paris Commune of 1871 provides an ideal case study for exploring the relationship between human cognition, social organization and urban ecology. The Siege of Paris formed a bottleneck that drastically altered the way in which energy-matter flowed through Paris, producing a selection mechanism that, in a sense, "speciated" working class and bourgeois Parisians into separate ecological niches. Humans responded to these dynamics by reconfiguring their cognitive environments,

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<sup>21</sup> Tim Ingold, "Beyond Biology and Culture. The Meaning of Evolution in a Relational World," *Social Anthropology*, 12, no. 2 (2004): 219.

conferring selective advantage to new behaviors and institutional structures that could meet, among others, basic needs. This paper aims to show how human cognition, in the context of nineteenth-century Paris, intersected with its environment to produce the Commune.

To analyze the cognitive ecology of the Paris Commune this paper will first look at the cultural milieu that helped shape French society prior to 1871. This follows Edwin Hutchins hypothesis of “enculturated cognition” in which he argues, “ecological assemblies of human cognition make pervasive use of cultural products.”<sup>22</sup> Understanding the discourses, symbols and practices, leading up to the Paris Commune allows us to understand the basic elements shaping the context of the city and how various cultural components came into new cognitive and social configurations via selection pressures. Specifically, this thesis investigates how particular neighborhoods facilitated certain forms of behavior, as well as investigating how specific cultural materials such as barricades and red flags allowed Parisian citizens to conceptualize and participate in a revolutionary context. My hypothesis allows an exploration of how the cognitive environment of Paris transformed through interlocking feedback between material processes and collective agency. Ultimately, this thesis claims that cities are co-evolutionary structures, selection driven adaptive landscapes that emerge to facilitate and sustain dense human habitation through the material organization of cognition.

In recent years, there has been an increasing convergence of the sciences and historical methodologies. Fields such as big history and deep history have tried to integrate patterns of organization observed by a multitude of scientific disciplines into

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<sup>22</sup> Edwin Hutchins, “Enculturating the Supersized Mind” *Philosophical Studies* 152 no. 3 (2011): 445 Accessed August 23, 2014, DOI 10.1007/s11098-010-9599-8

an explanatory narrative that seeks to relocate human beings and expand our conception of agency. Texts such as David Christian's *Maps of Time*, Daniel Smail's *On Deep History and the Brain* and, Manuel de Landa's *A Thousand Years of Nonlinear History* provide new analytical models, metaphors and analogies through which we can frame history utilizing contemporary scientific insights about physical patterns in the natural world. However, these texts tend to focus on three key concerns: discourse on the intellectual, methodological and professional development of a material systems approach to history in an attempt to establish the legitimacy of the perspective; a theoretical framework for a methodology of such histories; and macro-historical accounts. While such works have been extremely important, they have yet to produce a historiography on a "micro-historical scale." Following the precedents of these texts, this thesis weaves together theory and historical narrative into a coherent account of the Paris Commune. The ultimate goal is to elucidate the entanglement of human cognition with its environment, and to show how human beings and their societies express agency as part of an organic process. In this regard, perhaps the words of anarchist geographer and participant of the Commune Élisée Reclus can ring true, "L'homme est la nature prenant conscience d'elle-même."<sup>23</sup>

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<sup>23</sup> "Man is nature becoming conscious of itself." Quoted in *Anarchy, Geography, Modernity: Selected Writings of Élisée Reclus* eds. John Clark, and Camille Martin., (Oakland: PM Press, 2013), 3.

## INDUSTRIAL ENTANGLEMENTS

*“I am making a profession of an almost anti-dogmatism. Let us seek together, if you will, for the laws of society, the manner in which these laws are manifested, the progress of our efforts to discover them. But for God’s sake, after having demolished a priori dogmatisms, let us not in turn dream of making our own, of indoctrinating people... let us not set ourselves up as leaders of a new intolerance; let us not be the apostles of a new religion.”*

*Pierre-Joseph Proudhon, Letter to Karl Marx  
Lyons, May 17, 1846<sup>24</sup>*

Apostles of a New Religion

The world was on the verge of electrification. Railroad and telegraph spread from cities like metallic roots drawing resources towards their core. Peoples migrated across the planet at unprecedented scales. At the core of these reconfigurations spreading across the planet were the great cities such as Paris, whose footprints spread across global empires fuelling the dynamics of economic and environmental transformation. The Commune emerged amid tectonic shifts in the political, social, and economic structure of nineteenth-century Europe. The Franco-Prussian War redrew the map of Europe with the formation of the German Empire and France’s displacement from the apex of continental power. The effects of the industrial revolution were intensifying. The intersection of new technologies, institutions and environments produced self-stimulating feedback and fuelled rapid growth in social complexity.<sup>25</sup> Engineers transformed the thermal energy of coal into mechanical energy, energy that

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<sup>24</sup> Pierre-Joseph Proudhon and Ian McKay ed., *Property is Theft: A Pierre-Joseph Proudhon Anthology*, (Oakland: AK Press, 2011), 163.

<sup>25</sup> Feedback is the alteration or maintenance of a process mediated by its own effects. Steam engines provide an example, as heat from coal sped up the engine a governor composed of a cylinder and ball bearings would begin to spin. Due to kinetic energy at a certain speed, the bearings would lift and close the fuel valve, thus reducing the heat and slowing the engine. This built in self-regulation allowed steam engines to maintain a stable state instead of explode from overheating.

interacted with new world cotton and iron to mechanize textiles and produce steel. Rail and telegraph reacted back upon these processes, creating greater efficiency and demand. Marx wrote in the *Grundrisse*, “While capital must on one side strive to tear down every spatial barrier... and conquer the whole earth for its market, it strives on the other side to annihilate space with time.”<sup>26</sup> By the 1870s, a third wave of industrialization had begun, specifically with the introduction of electricity into the dynamics already underway between coal, steam, and steel.<sup>27</sup>

The success of industry seemed to confirm the Enlightenment’s central thesis, that human rationality could understand and perfect the world. The steam engine, the spinning jenny and the unimaginable accumulation of wealth confirmed the gospel of Reason. Doctrines of calculation and categorization found new energy as individuals and institutions sought to rationalize all modes of knowledge in the emerging cosmologies of industrial production. It was through the accumulation, categorization and implementation of knowledge that the industrial order sought to reify itself. Populations urbanized at an extraordinary speed, creating unprecedented scales of surplus labor and poverty as whole populations became utterly dependent on market dynamics. The dispossession, erasure and economic exclusion that became apparent in the processes of industrial development and capital accumulation offered a powerful retort to the political narratives and universalism of the nineteenth century. The quest for mastery over the new environments of industry and nation along with the failure of

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<sup>26</sup> Karl Marx quoted in David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 107.

<sup>27</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 20.

David Christian, *Maps of Time: An Introduction to Big History*, (Berkeley: University of California Press, 2005), 433.

social conditions to fulfil Enlightenment ideals unleashed a scramble for explanatory power. The material transformations of the nineteenth century opened a space for radical critiques of society and vigorous experimentation. Lambros Malafouris argues that, “Change must be understood and articulated at the level of the concrete artefact... Ideology is the result of analysis rather than the point of departure.”<sup>28</sup> It was in the context of enclosure, exploitation and possibility that socialism began to emerge as a growing set of challenges to the orthodoxies of liberalism. Indeed, the French revolutionary Louis Auguste Blanqui first used the term “industrial revolution.”<sup>29</sup>

Towards the middle of the nineteenth-century, theorists identified socialism as a genus of discourse and organization.<sup>30</sup> If the economic liberalism of the nineteenth century was the consolidation of Enlightenment theories, beliefs, and practices into a generally contiguous social order, then socialism was a set of heterodox protestations that arose to counter the hegemony of liberalism. The first formulations of what became modern socialism saw expression at the end of the eighteenth century. During the French Revolution, Francois-Noel Babeuf attacked private property and demanded economic equality commensurate with political equality.<sup>31</sup> However, it was Saint-Simon and Charles Fourier who formulated the initial theoretical discourse of socialism.<sup>32</sup> Both were enmeshed in the rationalism of the age, advocating for the reorganization and design of social systems in opposition to both the feudal and

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<sup>28</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 129.

<sup>29</sup> David Christian, *Maps of Time: An Introduction to Big History*, (Berkeley: University of California Press, 2005), 411.

<sup>30</sup> Arthur E. Bestor Jr., “The Evolution of the Socialist Vocabulary,” *Journal of the History of Ideas* 9, no 3. (1948): 259

<sup>31</sup> Peter Marshall, *Demanding the Impossible: A History of Anarchism*. (Oakland: PM Press, 2010), 433.

<sup>32</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 67-71.

bourgeois order. The thinkers had key differences: Fourier argued for self-managing collectives implemented in the design of communities, whereas Saint-Simon expressed a thoroughly technocratic approach to the management and division of society. The implementation of these early ideas exemplified differences between theoretical approaches. Saint-Simonian societies developed a degree of influence in the financing and implementation of state backed projects while Fourierists were responsible for many of the early utopian communities.

These were early intellectual and practical forays into the environments afforded by the Industrial Revolution. A multiplicity of socialisms emerged through the intersection of dialogue and experimentation, from English Owenites and Utopian communities in the Ohio valley, to the establishment of mutual aid societies and producer's cooperatives. The coupling of theorization with practical application formed a process of feedback that assembled into increasingly coherent engagement, shaping the trajectories of socialism. Over time, certain ideas, texts, and theorists, such as Proudhon and Marx, increasingly began to develop centrality in the discourse, acting to stabilize the language of both analysis and identification. Beginning as a heterogeneous and diffuse body of protestations, socialism consolidated into consistent vocabularies and practices towards the last half of the nineteenth century. Only with the advent of the First World War would socialist discourse undergo another comparable period of rapid innovation.<sup>33</sup> Manuel De Landa explains how linguistic reference develops:

Several social factors come into play in explaining how labels 'stick' to their referents: the history of the accumulated uses of the word, the role of experts in determining its reference, and the obligatory acquisition of

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<sup>33</sup> Arthur E. Bestor Jr., "The Evolution of the Socialist Vocabulary," *Journal of the History of Ideas* 9, no 3. (1948): 294

certain information which counts as part of our ability to use the word... successful reference is not purely linguistic and entails expertise in the manipulation and transformation of the objects and events which serve as the referents of words.<sup>34</sup>

Real world practices all informed and shaped the analysis of socialist theorists; the organization of silk workers in Lyon, for example, deeply influenced Proudhon, who lived in the city in 1843.<sup>35</sup> The Lyonnais silk weaver's producer cooperatives were first described as *mutuelliste* or *mutuellisme* in 1834 and in 1836 Proudhon termed his theory "Mutualite."<sup>36</sup> Here we can begin to see the material nature of language.

Philosopher Andy Clark's extended mind theory helps provide a non-dualistic interpretation of the relationship between language and matter. Clark argues that the process of labelling "opens up a variety of new computational opportunities and supports the discovery of increasingly abstract patterns," creating "a new realm of perceptible objects upon which to target basic capacities of statistical and associative learning. The act of labelling thus alters the computational burden imposed by certain kinds of problems."<sup>37</sup> In a wide-ranging process of practical and linguistic feedback, the material experiences of the nineteenth century created points of convergence through which common critiques and descriptions could coalesce and disseminate. In turn, the implementation of theoretical discourses shaped interpretations and engagement with material context. This reifies "the material reality of language" which Clark describes as "an additional, actively created, and effortfully maintained structure

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<sup>34</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 190-91.

<sup>35</sup> Ian McKay, *Property is Theft: A Pierre-Joseph Proudhon Anthology*, (Oakland: AK Press, 2011), 5.

<sup>36</sup> Arthur E. Bestor Jr., "The Evolution of the Socialist Vocabulary," *Journal of the History of Ideas* 9, no 3. (1948): 272

<sup>37</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 44-45.

in our internal and external environment. From sounds in the air to inscriptions on the printed page, the material structures of language both reflect, and systematically transform, our thinking and reasoning about the world.”<sup>38</sup> Whether in the shape of cooperative societies in Lyon, the development of credit schemes, or attempts at gaining political power, real world experiences and discourse helped to focus and consolidate socialist practices. Cognitive archaeologist Lambros Malafouris’ material engagement theory helps provide an explanation of how creative interaction with the physical environment helps to shape the development of thought:

There are no pre-formed ideas here, only potentialities or possibilities which are being loosely and flexibly objectified as part of an unfolding creative process. The role of this partial objectification is to enhance and make visible the situational affordances freeing up but also restructuring the available resources (e.g. working memory). This constant transformation of what is out there to be perceived facilitates further projections. Over time, these projections may construct a creative ecology of recursiveness and metacognition.<sup>39</sup>

The feedback from a “creative ecology” of theorists, activists, communities and experiments coalesced into increasingly consistent vocabularies, critiques and practices referred to as socialism.<sup>40</sup> A key factor in the consolidation of socialist discourse and practice was a rapidly expanding network of exchange and translation. In the first half of the nineteenth century, theoretical and descriptive terms proliferated, attempting to categorize and explain the new social experiences. As Andy Clark explains, “linguistic tools enable us to deliberately and systematically sculpt and modify our own process of

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<sup>38</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 59.

<sup>39</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 193.

<sup>40</sup> Indeed one of the key elements of the Communist Manifesto, written as it were on the eve of the 1848 revolutions, was to categorise the various forms of socialism that had emerged into a general ontology, albeit one that privileged German or “True” socialism at the apex.

selective attention.”<sup>41</sup> Early in the discursive evolution of socialism, there was a rapid diversification of linguistic materials such as the case with Fourier: Linguistic Historian Arthur Bestor notes, “Neither he nor his disciples could ever quite decide which group of terms to choose as the essential characterization of their system. This explains in part the complexity of the Fourierist vocabulary.”<sup>42</sup>

The second quarter of the nineteenth century was one of the most dynamic periods in the development of socialist vocabulary, as the radical presses flourished and the industrial revolution entered a second “wave” that rapidly spread outside of Britain.<sup>43</sup> As social reconfiguration intensified, there was a proliferation of terms for explaining emergent phenomenon. De Landa explains how vocabularies enter into a linguistic ecology, “a given individual variant does not enter this evolutionary process until it has stabilized in a portion of a communication network - that is, until it has become collective... a variant pattern shared by a group and used to communicate with other groups.”<sup>44</sup> For example, in the 1830s the words *socialisme*, *socialisation*, *sociabilise*, *socialite*, *socialist* all begin to appear interchangeably in French periodicals.<sup>45</sup> Overtime the randomness in language diminished and the meanings of words increasingly consolidated into certain combinational forms.<sup>46</sup> Socialist discourse in the nineteenth century developed through a process of rapid diversification, followed

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<sup>41</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extention*, (Oxford: Oxford University Press, 2011), 48.

<sup>42</sup> Arthur E. Bestor Jr., “The Evolution of the Socialist Vocabulary,” *Journal of the History of Ideas* 9, no 3. (1948): 264

<sup>43</sup> *Ibid.*, 289

<sup>44</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 193.

<sup>45</sup> Arthur E. Bestor Jr., “The Evolution of the Socialist Vocabulary,” *Journal of the History of Ideas* 9, no 3. (1948): 277

<sup>46</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 220-221.

by stabilization and the dominance of certain linguistic materials. By the middle of the century, certain terminology and themes had begun to crystallize, terms such as industrial, socialist, solidarity, and communist were all becoming commonplace by the 1840s.<sup>47</sup> According to David Harvey three themes, equality, association, and community/communism bound this discourse together.<sup>48</sup> This linguistic and thematic coherence is what identified socialism as a distinct phenomenon.

By the time of the Commune, Karl Marx had been actively cultivating the communication networks of European socialists for decades. In an 1846 letter to Proudhon (who had been a friend of Fourier), Marx wrote, “I have made arrangements with the German communists and socialists for a constant interchange of letters... The chief aim of our correspondence, however, will be to put the German socialists in touch with the French and English socialists.”<sup>49</sup> By 1864, Marx had taken a lead role in the formation of the first International, the single densest node in the socialist communication network at the time. Thus by the time of his address to the International on *The Civil War in France*, Marx’s ideas were extremely well positioned to “stick” as a description. As De Landa clarifies, “Given a network of a certain density, the higher the local prestige of an individual, or the larger the number of his or her contacts, the more likely it is that a variant originated by that individual will become collective and eventually become part of the accumulated heritage.”<sup>50</sup> The materialization of the Commune and its use of socialist discourse and organization provided the necessary

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<sup>47</sup> Arthur E. Bestor Jr., “The Evolution of the Socialist Vocabulary,” *Journal of the History of Ideas* 9, no 3. (1948): 290

<sup>48</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 73-78.

<sup>49</sup> Karl Marx, *Marx and Engels Collected Work Volume 38*, (London: Lawrence and Wishart, 1975), 38.

<sup>50</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 193.

referents for which Marx's ideas could adhere to and crystallize. As Malafouris explains, "some form of external manipulable structure, persistent or ephemeral, must be present to trigger and support projection."<sup>51</sup> Given Marx's central position within the communication networks of socialism, it helped to ensure that many socialists accepted his explanation of events as the essential identity of the Commune.

The contours of nineteenth-century socialism, broadly defined, resulted from constant admixtures of ideas, practices, adaptations, experiences and expressions in a variety of contingent but relatively coherent forms. By 1871, Paris was an assemblage of political, social and economic discourses and practices in which the radical left was a powerful and persistent presence. The Commune was not a theoretically "pure" socialist revolution; it did not emerge solely through socialist activity or clearly defined categories of development and progression. However, the Commune was the first revolution in which a majority of revolutionary socialists held political power, albeit from a variety of tendencies. The critiques and experimentations of socialists intertwined with the nature of political and economic challenge by the middle of the nineteenth century. Socialist engagement provided a critical component in exploring and shaping the new cognitive environments that emerged during the Commune. The advent of the physical Commune created space for new forms of socialist expression, which in turn helped inform the perceptions and possibilities of socialism. By helping to concretize theory and imagination, the Commune gave socialism a more coherent structure from which to define itself in the future. Thus, Socialism and the Paris Commune, though not synonymous, are inseparably fused; they exist in the context of one another.

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<sup>51</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 102.

### Holy Land

Starting with the revolution of 1789, and continuing with successive uprisings, France played a central role in framing radical political discourse throughout the nineteenth century. In his introduction to *The 18th Brumaire of Louis Bonaparte* Engels wrote:

France is the land where, more than anywhere else, the historical class struggles were each time fought out to a decision... This was the reason why Marx not only studied the past history of France with particular predilection, but also followed her current history in every detail.<sup>52</sup>

These revolutionary periods embedded themselves into the cultural environment, mediating many French identities. For example, one of the first public acts during the Commune was the burning of two guillotines in front of a statue of Voltaire.<sup>53</sup> Malafouris explains this use of material metaphor from the perspective of cognitive extension, “in domains where no pre-conceptual structure is directly available on the basis of experience, we import such structure by way of metaphoric and integrative conceptual mapping.”<sup>54</sup> Past revolutionary experience provided a means for understanding and navigating new experiences during the Commune. Such conceptual mapping lay at the nexus of practical and theoretical feedback shaping the radical experience of the nineteenth century. In 1789, the Revolution laid the foundations of political struggle as well as the promise of social regeneration. Successive uprisings

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<sup>52</sup> Frederick Engels, “Preface to the Third German Edition” *The Eighteenth Brumaire of Louis Bonaparte*, (New York: International Publishers, 2004), 13-14.

<sup>53</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 1.

<sup>54</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 61.

expanded this discourse and practice. Following the 1830 overthrow of the July Monarchy, Republicans, who increasingly saw the revolution as betrayed, began to expand their support amongst artisans.<sup>55</sup> The revolution of 1848 triggered the largest wave of revolutionary activity in European history and embedding into “the collective memory as the unfulfilled dream of a democratic and social republic.”<sup>56</sup> King Louis-Philippe (1773-1850) abdicated in February of 1848, after what David Harvey describes as “the deepest and most widespread crisis of capital yet experienced.”<sup>57</sup> The Second French Republic (1848-1852) came into being amidst the highest degree of socialist involvement in the political process up to that point. Due to severe economic depression and the extensive participation of working class peoples in overthrowing the July Monarchy, the government declared the right to work and created national workshops. As conservative elements began to dominate the political process of the new republic, the workshops became an issue of increasing contention. On June 21 1848, a decree ordered the expulsion of all unmarried workers from the national workshops. The following morning laborers sealed off eastern Paris with barricades and fought the National Guard for over three days. The events of the “June Days” became as entangled into the narrative of the revolutionary left as the 1789 revolution. Historian David Shafer explains, “by 1870 all revolutionary republicans accepted 1793 as their common heritage. If 1793 was the historical fault line that separated revolutionary from

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<sup>55</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 3.

<sup>56</sup> *Ibid.*, p. 23

<sup>57</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 93.

parliamentary republicans, June 1848 represented a tectonic schism of unbridgeable proportions.”<sup>58</sup>

In the wake of the repression, politics in the Second Republic became increasingly intractable until December 1848 when the people elected Napoleon Bonaparte’s nephew as president of the republic. In 1851 Louis-Napoleon III (1808-1873) carried out a coup d’état, inaugurating the Second Empire (1852-1871). David Harvey describes the nearly two decades of the Second Empire as, “a deadly serious experiment with a form of National Socialism - an authoritarian state with police powers and a populist base.”<sup>59</sup> Among the first laws passed in the Second Empire were censorship of the press and criminalization of public assembly. Louis-Napoleon’s rule utilized the state as a means for mediating class relations. Steeped in Saint Simonian doctrine of “*state productive expenditures*” officials designed and deployed a variety of financial mechanisms to back public works and modernize French infrastructure.<sup>60</sup> During Napoleon III’s reign, there was a rapid expansion of economic activity. From 1850 to 1870, France’s railroad network expanded from 900 kilometers to 1600 while standards of living measured by caloric intake and diversity of diet were improving across the board.<sup>61</sup> However, as the economy began to contract during the 1860s the debt-based growth began to show severe instability and the Empire began to liberalize, restoring freedom of the press and right to assembly. As Louis-Napoleon attempted to

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<sup>58</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 23.

<sup>59</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 98.

<sup>60</sup> Ibid., 142

<sup>61</sup> J.R. McNeill and William H. McNeill, *The Human Web: A Bird’s-Eye View of World History*, (New York: W.W. Norton & Company, 2003), 220.

David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 9.

shore up his popular base, he also made new and expanded concessions to working class organizations. He even facilitated the formation of the First International by giving patronage for a delegation to the International Exposition of 1862 in London.<sup>62</sup> Labor organization began to expand dramatically during the 1860's with a great deal of unrest, strikes and generally more flagrant radical organizing. Over the course of the decade, for example, the first International (which formed in 1864) gained around 50,000 members in Paris and up to 500,000 nationally.<sup>63</sup> Increasing economic instability and the organization of the Empire's opposition marked the years leading up to the Franco-Prussian war. On September 2 1870, Louis Napoleon surrendered to the Prussian army at Sedan, two days later the people converged on the Hotel de Ville demanding a new government and officials declared the Third Republic.

### The Mecca of Revolution

By 1871, the revolutionary imagination was deeply ingrained into the history and culture of many Parisians as both national identity and future possibilities. The effects of revolutionary culture had also been inscribed upon the physical environment of Paris. In the wake of the defeated 1848 revolution, Louis-Napoleon commissioned the redesign of Paris by prefect of the Seine Baron Georges-Eugene Haussmann (1809-1891). The Haussmann plan, while modernizing the city, had two powerful effects upon the Parisian working class and the Commune. Firstly, the replacement of the city's medieval infrastructure through the creation of ordered streets, boulevards, parks and other public spaces functioned tactically to deny insurgents the ability to barricade and

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<sup>62</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 14.

<sup>63</sup> *Ibid.*, 15

hold the narrow labyrinths of ancient Paris. Secondly, it gentrified the center of Paris and displaced Parisian workers from their historical environs to the Faubourg's surrounding the city. In essence, bourgeois populations colonized the core of Paris, displacing communities that occupied those areas for centuries. The very same working class peoples that physically constructed the new urban environments of Paris were expelled to the extremities of the city.

The unplanned aspects of cities emerge through organic processes of aggregation and expansion, developing their own internal, organizational logic. James C. Scott describes these patterns of local urban context as functioning "spatially in much the same way a difficult or unintelligible dialect would function linguistically."<sup>64</sup> In the social configurations that emerged in ancient Paris, certain districts consolidated around specific trades or activities. The class structure of the city tended to express itself vertically with petite bourgeois shop owners at the lower levels, the wealthy occupying middle floors of buildings and the poor concentrated in the upper levels. Certain areas such as those associated with student and artisanal communities developed insurrectionary cultures. During the first half of the nineteenth-century open revolt occurred repeatedly before the implementation of the Haussmann plan in 1851.<sup>65</sup> Using central authority to raise massive quantities of capital, the state in collaboration with private interest completely redesigned the core of the city, "where possible, insurrectionary quarters were demolished or broken up by new roads, public spaces, and commercial development."<sup>66</sup> Vast swaths of the center were demolished and reconstructed with boulevards, department stores, water, sewage, gas mains and

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<sup>64</sup> James C Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven: Yale University Press, 1998), 54.

<sup>65</sup> Ibid., 61.

<sup>66</sup> Ibid., 61

lighting, drastically reconfiguring the city. The reorganization of Paris often exerted powerful, yet not always apparent, influences upon behavior. In some ways these changes were undoubtedly beneficial such as the improvement of sanitation; others were destructive such as the dismantling of communities. Unquestionably, the renovations radically altered the way in which individuals and communities experienced and participated in the city. Scott explains, “Haussmann’s plan was less for fiscal reasons than for its impact on the conduct and sensibilities of Parisians.”<sup>67</sup>

The city center modernized and rationalized at an unprecedented scale. In David Harvey’s words, Haussmann changed “the spatial scale of both thought and action.”<sup>68</sup> This gave the state both greater administrative control as well as consolidating the bourgeoisie in the city’s core. The Parisian elite had long been aware of the illegibility and restiveness of working class districts: indeed, it had been one of the key goals of the Haussmann plan to disempower revolutionaries in Paris. Boulevards were expanded with geometric precision to give armies ready access to Paris and the surfaces of streets macadamized to prevent the creation of barricades. In November 1870 the writer Edmund Goncourt recounted Victor Hugo telling him at a dinner party, “Yes, the Empire did nothing to provide a defense against foreigners; everything it did was designed to provide a defense against the population.”<sup>69</sup> The Haussmann plan required massive quantities of capital to reconstruct Paris leading to unprecedented levels of real estate speculation and gentrification as rents soared. Throughout the mid-nineteenth century, the Parisian elite employed the city’s workers to tear down their homes and

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<sup>67</sup> James C Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven: Yale University Press, 1998), 59.

<sup>68</sup> David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 13.

<sup>69</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 179.

displace themselves from their historic neighborhoods. The raising of property values commensurate with renovation tended to lock working class populations out of the newly refurbished areas and a flood of working class Parisians migrated to the periphery of the city where rents remained affordable. As a heterogeneous assemblage of working class peoples emerged in the new areas so did new identities and traits. “Belleville, a popular working-class quarter to the northeast which grew into a town of sixty thousand people by 1856... By the 1860s, it had become a suburban equivalent of what the Faubourg Saint-Antoine had been earlier — an illegible, insurrectionary foyer.”<sup>70</sup> The traditionally vertical and distributed class composition of the city, with low class tenants at the tops of apartments and wealthier ones towards the bottom, was dismantled and replaced with a horizontal configuration. Paris began to take on a core/periphery class structure with the “ring of red” surrounding Paris’ bourgeois center. The consolidation of working class communities was an unintended consequence of State practices and was instrumental in shaping the emergence of the Commune. This process of consolidation reflects perfectly Emanuel de Landa’s argument that, “Hierarchy building consists of two distinct operations, a homogenization by a sorting process, followed by a consolidation through coding into legal, religious, or other formal regulations.”<sup>71</sup> The massive quantities of capital unleashed during Haussmannization spatially organized the class hierarchy. Flows of capital homogenized communities of class and consolidated them through the legal structure that regulated access to property. In de Landa’s words:

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<sup>70</sup> James C Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven: Yale University Press, 1998), 63

<sup>71</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 118.

Sedimentary rocks, species, and social classes (and other institutionalized hierarchies) are all historical constructions, the product of definite structure generating processes that take as their starting point a heterogeneous collection of raw material (pebbles, genes, roles), homogenize them through a sorting operation, and then consolidate the resulting uniform groupings into a more permanent state.<sup>72</sup>

The nexus of state administration was able to harness and consolidate the practices of various financial institutions and industries, political will, technological innovation, economic necessity and state legibility practices to transform the city's environment. Paris became an artefact of the state via the Haussmann Plan. The hierarchy of class inscribed itself into the material structure of the city, a structure that intersected with a multitude of dynamics from siege to socialist discourse and a host of other elements, resulting in the Paris Commune.

### Rendering Caesar

Imagine the walls of Paris like the mineral membrane of a cell. Within its walls, matter, energy, and information intersect in an endlessly generative process, flowing into various configurations of bodies, minds and materials. Eddies form in cafes and print shops, swirling on to homes, militias, and government offices, barricades emerge and great currents sweep them away, bones become sediment, powerful flows carving the channels of history. By the mid-nineteenth century, Paris drew vast flows of energy and matter into its core, a city radically reshaped by the most ambitious urban renovation program of the century. The class hierarchies, and the cultural values that bound them together, had consolidated with a gentrified core and solidly working class periphery. Socialist engagement provided a critical means for interpreting and engaging

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<sup>72</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 62.

with the new environments of industrialization. Throughout working class districts, dedicated radicals like Eugene Varlin experimented with alternative social models such as La Marmite, a cooperative restaurant that provided low cost food to working class communities.<sup>73</sup> The so-called “ring of red” provided a fertile cognitive ecology in which the tradition, discourses and practices of the radical left could replicate and spread. Historian David Christian notes of the relationship between language and adaptation, “symbolic language may have returned some of the adaptive flexibility that bacteria enjoy through their ability to freely swap genetic material, by permitting us to swap information instead of genes.”<sup>74</sup>

While the working class periphery provided a diverse environment of cultural practices, the bourgeois core worked to maintain the stability of their system. The ecologists Lance H. Gunderson and C.S. Hollings theory of “panarchy” sheds light, in which the “source and role of change in systems” is analyzed through “adaptive cycles” of growth, conservation, release and renewal. At the outset of the Franco-Prussian War, the social order of Paris was held together by the rapid expansion of the Second Empire’s economy and culture. As the rate of state expenditures began to drop and growth began to slow, the elite increasingly tried to maintain the stability of their social order through economic and political liberalization. As Gunderson and Hollings explain, during the conservation phase in an adaptive cycle:

The growth rate slows as connectedness increases to the point of rigidity and resilience declines. The cost of efficiency is a loss of flexibility. Increasing dependence on existing structures and processes renders the

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<sup>73</sup> Paule Lejeune, *Eugene Varlin: Pratique militante & ecrits d’un ouvrier communard*, (Paris: L’Harmattan, 1977), 34.

<sup>74</sup> David Christian, *Maps of Time: An Introduction to Big History*, (Berkeley: University of California Press, 2005), 112.

system vulnerable to any disturbance that can release tightly knit capital. Such a system is stable, but over a decreasing range of conditions.<sup>75</sup>

Over a million soldiers, swarming out of Germany and surrounding the city, would prove to be just the ecological disturbance necessary to reconfigure Paris' physical and cognitive environments.

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<sup>75</sup> Lance H. Gunderson and C.S. Holling, eds. *Panarchy: Understanding Transformations in Human and Natural Systems*, (Washington: Island Press, 2002), 7.

## A MATTER OF ENERGY

*“The disorder is immense”*  
-Mary Putnam<sup>76</sup>

Divergence

On August 31 1870, the French military began strategically demolishing houses in the suburbs of Paris. The refugees flooding into the city appeared to Edmund De Goncourt as “the migration of an ancient people.”<sup>77</sup> Behind this inundation of bodies, more than a million Prussian soldiers poured across the borders of France. In little over a month, the Germans had employed rail, telegraph and artillery with a devastating synchrony to overwhelm the armies of France’s Second Empire. With increasing waves of shock, it became apparent that Paris needed to prepare for a siege. Accustomed to dominance, the high command’s response proved haphazard and confused. Citizens wandered in a daze as ragged and weary conscripts set up camp on the Champs de Mars; soldiers erected barricades around the Arc de Triumph. Strategic locations such as Châtillon were abandoned and civilians that should have been evacuated were brought into the city walls. Military officials hastily cleared areas to store livestock and produce, but they devised no system of rationing. Whatever could not be brought into the city officials burned in the fields, a scorched earth policy to deny the Prussians access to provisions. Paris was in the early stages of a profound social transformation. For American ambassador Elihu Washburn the city was “one big camp... Streets and

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<sup>76</sup> Mary Putnam, “Paris in 1870: Letters of Mary Corinna Putnam,” *The American Historical Review*, Vol. 22, No. 4 (Jul., 1917): 838.

<sup>77</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 168.

avenues are filled with tents and baggage wagons, horses, forage &c. The garden of the Tuileries is filled with artillery.”<sup>78</sup> Over the next four months, with over a million and a half people confined and isolated within its walls, the “city of lights” went dark, the grand avenues denuded of trees and sewers scoured of rats. The Commune emerged in the wake of this devastation.

On September 19, the investment of Paris began. The Prussian lines, measuring over eighty kilometers in circumference, were more a geographical feature than intimate presence. On the third day of the siege, Goncourt, observing from the ramparts, wrote, “The Horizon is just mist and dust, with a few puffs of white smoke which one assumes to come from the guns.”<sup>79</sup> The Prussian encirclement was almost geological in its scale, like some human glacier carving into the earth around Paris, a barrier separating the city from the world. As mentioned, in 1870 Paris was at the center one of the largest and most complex global webs of the age. Rail and telegraph networks extending from a Parisian core linked industrial centers, agricultural regions and ports. As De Landa notes, “Without an energy flow of a certain intensity, no system, whether natural or cultural, can gain access to the self-organization [of] resources.”<sup>80</sup> Vast amounts of materials, energy and information moved across the globe to be managed, processed, and consumed within Paris. Capturing this organizing effect, Victor Hugo

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<sup>78</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 50.

<sup>79</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 173.

<sup>80</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 55.

described the “smoldering between Paris the center and France the orbit, this struggle which represents the swaying of the forces of gravity.”<sup>81</sup>

The entrenchment of the Prussian military abruptly cut off the flows of material and information that shaped and sustained Paris. Washburne wrote on the first day of the siege that, “all the roads are cut and no mails and no communications. And it seems odd to be in this great world and not in it-shut out from all communications, no letters, no papers, no nothing.”<sup>82</sup> Paris became isolated from the broader environment in which it had operated; as an island ecology separated from previous connections, it began to diverge. One of the critical factors in this divergence was a veritable drought of information. For the next four months, the only communications out of Paris occurred largely via pigeons, the occasional breakout of an individual, and the daring balloon flights for which the siege became so renowned. Information coming into Paris was even rarer.

All complex systems, whether stars, organic bodies, or ecologies require some form of feedback (environmental, hormonal, behavioral) that functions to regulate their constituent elements and maintain coherence as self-organizing wholes; this is no less true for a city or nation state. Ecologists Simon Levin defines feedback as the “influence on a system component mediated by changes induced by that component.”<sup>83</sup> A simple example of feedback is that of a fire. Available fuel allows the flame to expand, the more it expands the more fuel it consumes and the larger it grows. The self-reinforcing

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<sup>81</sup> Victor Hugo, *Paris Guide*, 1867 quoted in Alistair Horne, *The Fall of Paris: The Siege and the Commune 1870-71*, (London: Penguin Books Ltd, 2007), vii.

<sup>82</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 52.

<sup>83</sup> Simon Levin, *Fragile Dominion: Complexity and the Commons*, (Cambridge: Helix Books, 1999), 233

dynamic of positive feedback continues until the fire alters its environment to such an extent that it consumes all available fuel and is no longer able to expand. The lack of fuel provides negative feedback, a dynamic in which the effects of the process functions to inhibit its own growth, and thus the fire begins to die.

The information vacuum created by the siege drastically inhibited the process of feedback and was instrumental in the divergence between Paris and France. The organizational failure of the Ducrot Plan and the attack led by Minister Leon Gambetta from the provinces makes this lack of coherence between city and nation clear. In late October, General Ducrot had spent nearly a month covertly assembling forces for a break through attack to the northwest of Paris. However, Gambetta, who had escaped via balloon to rally the provinces, had gathered the armies of the Loire for an attack on the southern approaches of the city. A farmer that crossed the Prussian lines informed the Parisian high command of Gambetta's approach. This forced a rapid change of plans in the hopes of concentrating forces. Ducrot's forces had just over a week to scramble across Paris with some 80,000 men hauling hundreds of cannon and other materials to prepare the attack.<sup>84</sup> The Prussians, observing the commotion, guessed at the French intentions and prepared for the sortie, resulting in the spectacular failure of the attempted breakout. In other words, information-starved Paris and the broader French network had become relatively unresponsive to one another and emerged along separate paths. Indeed, the military dispatches from Paris that were essential to the coordination of the two attacks were jettisoned into the ocean just before the balloonists carrying them managed to bail out onto the pine covered slopes of Norway.<sup>85</sup> The connectivity

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<sup>84</sup> Alistair Horne, *The Fall of Paris: The Siege and Commune 1870-71*, (New York: Penguin, 2007), 143.

<sup>85</sup> *Ibid.*, 145

that made Paris responsive to its broader ecological context had broken down and the city had begun to diverge. The lack of feedback in conjunction with the lack of supplies flowing into the city began to catalyze the radical transformation of Paris.

### Metabolic Collapse

The basic function of the siege was to create a bottleneck that severely truncated the urban system that, as noted before, extended globally. Ecologically speaking, it cut off the matter-energy flows that normally sustained the city. At the outset, the Parisian High Command did not expect the siege to last much longer than two months and had thus provisioned Paris for exactly that.<sup>86</sup> However, before even two weeks had passed the constriction became apparent to even the most privileged residents of Paris. Ambassador Washburne wrote:

Even now, the twelfth day, the siege begins to be felt. Fresh meat is scarce and the butcher shops are surrounded by people in a riotous spirit. Bread... is abundant and cheap... horses are already starving. It is estimated that fifty thousand will be killed for food. They are selling for almost nothing. I saw very decayed horses sold at auction the other day for from five to eight dollars a head.<sup>87</sup>

The demands of the city were staggering, the *British Medical Journal* reported on October 1 that from the government controlled livestock “500 oxen and 4000 sheep are given up daily for slaughter.”<sup>88</sup> This illuminates the concept of urban ecology. “Cities and towns” De Landa writes, “may be considered ecosystems to the extent that biomass

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<sup>86</sup> Mary Putnam, “Paris in 1870: Letters of Mary Corinna Putnam” *The American Historical Review*, 22, no. 4 (1917), 840.

<sup>87</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 57.

<sup>88</sup> “Special Correspondence,” *The British Medical Journal*, 2, no. 512 (1870), 440.

circulates through them to feed their inhabitants.”<sup>89</sup> As an ecosystem, Paris drew energy and matter into its core in order to support the systems functioning. This brings forth the notion of urban metabolism. One of the most fundamental aspects of an urban system are the food supplies that support the metabolism of the city’s populace; however, this also includes everything from water needs, materials for manufacturing, and energy supplies for the purpose of heating, lighting and processing.

With Paris’ metabolism restricted to a circumference of less than sixty-five kilometers from the line of defense the city began to do what any body faced with starvation does, it began to consume itself. Beyond the siege lines, there were structural disadvantages in the pre-existing organization of food distribution and consumption in Paris. Assistant secretary to the American legation Wickman Hoffman (1821-1900) noted that, “The French live from hand to mouth, buying only what is necessary for the day, and laying no stores. This comes, I think, from their system of living in apartments, and the want of storerooms.”<sup>90</sup> In ecological terms, the lack of redundancy in food storage undermined Paris’ resiliency. Ecologists Lance H. Gunderson and G.S. Hollings explain resiliency as “the ability of a biological system, an ecosystem, or a social system to withstand disturbances and still continue to function. A measure of resilience is the magnitude of disturbance that can be experienced without the system flipping into another state.”<sup>91</sup> These structural disadvantages coupled with a population greatly expanded by soldiers and refugees was further exacerbated by the lack of any

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<sup>89</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 106.

<sup>90</sup> Wickman Hoffman quoted in *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 58.

<sup>91</sup> Lance H. Gunderson and C.S. Holling, eds. *Panarchy: Understanding Transformations in Human and Natural Systems*, (Washington: Island Press, 2002), 17.

significant rationing or distribution controls (with the sole exception of bread), and this fact stressed Paris' integrity.

The paucity of resources quickly lead to rapid price inflation. Dr. Brierre De Boismont, administrator of a "lunatic asylum", wrote, "speculation in the necessities of life considerably enhanced their prices. Fuel of all kinds and many other articles could scarcely be procured. In the early part of October the supply of milk ceased."<sup>92</sup> Unfortunately, as with a starving organism that shuts off "non-essential" organs in order to sustain critical functions, the lower and underprivileged classes were treated as little more than unnecessary appendages. They were simply priced out of the food supply. Inflation literally shut down the metabolisms of the working classes in Paris. By the middle of October a single egg cost a single franc.<sup>93</sup> As the National Guard was the only major source of income during the siege and pay was one and a half Francs a day one can begin to see the terrifying conditions that the Parisian underclasses faced.

Already by October, the situation had become difficult with "ominous" lines forming around the butcher shops by five in the morning.<sup>94</sup> The mayors offices of various arrondissements attempted to relieve some of the burden with the organization of public canteens. However, by November these soup kitchens were already being overwhelmed by crowds "now very large, and all are without food."<sup>95</sup> The fuel and food necessary to sustain Paris rapidly disappeared and the city's functions began to shut

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<sup>92</sup> Brierre De Boismont, "A Lunatic Asylum During the Siege of Paris," *The British Medical Journal*, 1, no. 531 (1871), 234.

<sup>93</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 69.

<sup>94</sup> Correspondent, "Special Correspondence: Paris," *The British Medical Journal*, 2, no. 512 (1870), 440.

<sup>95</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 80.

down one after another. In other words, urban metabolism was becoming catabolic. By the middle of November Washburne wrote, “Horse meat and mule meat is very generally eaten now and they have commenced on dogs, cats and rats... The gas is also giving out and today the order appears that only one street lamp in six is hereafter to be lighted at night.”<sup>96</sup> With only the price of bread fixed, Parisians increasingly began to tap the urban ecology for other food sources. Species that had co-evolved with humans over millennia to survive in cities such as rats and pigeons began to provide critical sustenance. However, even these unusual foodstuffs were soon subject to market dynamics, putting them out of reach of the working classes unless directly hunted. Washburne recounts a slightly unorthodox menu far beyond the franc and half salary on which most of Paris subsisted:

For cats; a common cat, eight francs, a Thomas cat, ten francs; for rats, a common rat, two francs, long-tailed rat, two francs and a half; for dogs... two francs a pound; for a fat dog, two and a half francs.<sup>97</sup>

The Parisian ecology, understood in terms of the flow of energy through a food web, was transforming.<sup>98</sup> The web that sustained Parisians was radically altering in terms of both food sources and the positions of different communities in relation to those sources. It is in this sense that Paris began to undergo something akin to social “speciation” between Parisian classes. Niches, or the role occupied within a community of species and particularly the web of feeding relationships generally identifies

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<sup>96</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 83.

<sup>97</sup> Ibid., 87

<sup>98</sup> Mary C. Stirner and Gillian Feeley-Harnik, “Energy and Ecosystems” in *Deep History: The Architecture of Past and Present*, (Berkley: University of California Press, 2011), 81.

organisms.<sup>99</sup> Manuel de Landa explains the concept of “social niches” in cities as the way in which “urban ecosystems as pyramids in which shortened food chains redirect all energy toward the apex, but the existence of social classes implies that the apex itself has a hierarchical structure; that is, it is divided into several *niches* arranged by ranks.”<sup>100</sup> The German siege forced working class members of Parisian society into marginal social niches while the more elite members were able to tap exotic and exorbitant resources such as the zoological gardens. Indeed, as Paris’ metabolic processes began to collapse it is not too much to say that the city began to devour its most vulnerable citizens while sustaining its wealthiest with comparatively little hardship. The most susceptible bodies, such as those of the elderly, young and poor were “metabolized” at an astounding rate. Other than cold and hunger, organisms such as cholera and the common cold were able to flourish by “digesting” weakened bodies. The vulnerability of marginal populations is attested to by calculations that infant mortality for children born during or just before the siege was around 90% and that working class deaths generally were double that of the upper class.<sup>101</sup> Ambassador Washburne’s description of working class communities towards the end of November makes vividly clear the condition of the poor: “There was the greatest number of women and children of the poorer classes, all thinly clad and shivering with cold, and with a

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<sup>99</sup> Simon Levin, *Fragile Dominion: Complexity and the Commons*, (Cambridge: Helix Books, 1999), 236.

<sup>100</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 116-7.

<sup>101</sup> Donny Gluckstein, *The Paris Commune: A Revolution in Democracy*, (Chicago: Haymarket Press, 2011), 87.

David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 51.

look of the most saddening anxiety.”<sup>102</sup> Meanwhile, for the wealthier classes food was costly but available with items such as elephant trunk selling at forty francs a pound.<sup>103</sup> However even these uncommon reserves began to rapidly deplete. By the middle of December, *the British Medical Journal* reported, “All the animals in the Zoological Gardens have been eaten; cats and dogs have been devoured to such an extent that they are now rare animals in Paris.”<sup>104</sup>

As winter set in, services and operations seized up. Lights went dark throughout Paris and, with horses now requisitioned for food, transportation in the city ground to a halt.<sup>105</sup> As the situation became more desperate, the government started to intervene directly, commandeering the horses in the city for distribution and cutting down trees on the boulevards for fuel.<sup>106</sup> Warmth was becoming one of the critical issues for Parisians. In December, the temperatures dropped precipitously in one of the coldest winters in decades, reaching over negative fifteen degrees centigrade.<sup>107</sup> The city was not producing enough heat to sustain human bodies. Independent social institutions began to seize up, though they tended to have a degree of redundancy and, therefore some resiliency in insulating from the cold. De Boismont, director of the mental asylum, later recalled, “In consequence of the deficiency of coal, wood, and coke, I was under the painful necessity of discontinuing the baths, and shutting up the stoves in

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<sup>102</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 93.

<sup>103</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 180.

<sup>104</sup> Correspondent, “Notes of the War: Adventures of an Ambulance-Surgeon in the Sorties from Paris” *The British Medical Journal*, 2, no. 520 (1870), 664.

<sup>105</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 115.

<sup>106</sup> *Ibid.*, 116

<sup>107</sup> *Ibid.*, 113.

order to enable me to have the coal for use in the kitchen.... In consequence of this absence of fuel, I had to cut down twenty large trees in my own grounds.”<sup>108</sup> However, even if such localized resources were not available, wealthier citizens could still purchase resources at extremely high prices ranging around forty dollars for less than a cord.<sup>109</sup>

It was around this basic issue of heat that some of the most pronounced collective actions during the siege began to occur. On the day after Christmas, Washburne recounted in his diary, “It is now a question of fuel as well as of food and the wood riots have commenced. The large square across the street diagonally from our house was filled with wood from the Bois de Boulogne which had been sawed up to burn into charcoal... a crowd of two or three thousand women and children gathered... and ‘went for’ this wood.”<sup>110</sup> Desperation and sheer need began to erode the social boundaries of private property and the poorer citizens of Paris began to abscond with stores of wood, collectively hacking down and carting off trees from the avenues and parks, even ripping up wooden fences and benches that lined the streets. Perhaps nothing can more clearly illustrate the ecological division of the classes than contrasting the mere fact of these actions with Washburne pining that, “the cutting down of a shade tree is akin to the commission of murder.”<sup>111</sup> What is critical about such events is that it shows communities collectively and spontaneously engaging to reshape their environments.

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<sup>108</sup> Brierre De Boismont, "A Lunatic Asylum During the Siege of Paris," *The British Medical Journal*, 1, no. 531 (1871), 234-35

<sup>109</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 121.

<sup>110</sup> *Ibid.*, 119

<sup>111</sup> *Ibid.*, 127.

By January, the city was nearly denuded of trees; the streets and buildings were unlit for want of gas, no horses or carriages moved about the avenues. Few humans braved the streets other than hordes of the destitute scouring the city for wood to burn. It was as a body going into massive organ failure, even the elites, the “vital” organs in this analogy, began to feel the pinch. Yet the suffering of Paris’ working classes was in extremis. Towards the end of the siege the death rate more than tripled to 4,670 a week, mostly the children and elderly amongst the poor.<sup>112</sup> Freezing to the point where it was warmer to stand outside of their homes in January than inside, food was almost entirely unavailable. Goncourt wrote, “As for the two staples items of the lower classes-potatoes and cheese-cheese is just a memory, and you have to have friends in high places to obtain potatoes at twenty francs a bushel. The greater part of Paris is living on coffee, wine, and bread.”<sup>113</sup> Yet this bread was highly adulterated made with any available material, whether bone meal, saw dust or worse, to increase its substance. Dr. Boismont recalled, “On January 13th there was only a black kind of bread, which, when eaten, spread itself upon the tongue like dust and irritated the teeth.”<sup>114</sup> The bottleneck created by the Prussians had nearly pushed Paris into full catabolic collapse. The siege ended January 28 and, had the Germans carried on longer, the human destruction could have conceivably started nearing the later siege of Leningrad by a different German army. However, the dynamics of the siege had set in motion a powerful reorganization of the lives and institutions through which Parisian social structure emerged.

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<sup>112</sup> Brierre De Boismont, "A Lunatic Asylum During the Siege of Paris," *The British Medical Journal*, 1, no. 531 (1871), 235.

<sup>113</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 181.

<sup>114</sup> Brierre De Boismont, "A Lunatic Asylum During the Siege of Paris," *The British Medical Journal*, 1, no. 531 (1871), 234.

### Urban Entropy

To understand how the siege reconfigured the cognitive ecology of Paris it is critical to investigate the ways in which energy, and the processes of entropy shaped the environment of the city. Anthropologists Mary C. Stirner and Gillian Feeley-Harnik explain the relationship between humans, food, and energy: “Some of the most significant transformations in the socio-economic organization of cultures therefore relate to changes in human trophic level, or how efficiently humans capture and transform energy. As a rule of thumb, the pace at which entropy reduces available energy along these pathways determines many properties of biotic communities.”<sup>115</sup> Entropy, the spontaneous, internal characteristic of energy to move from an organized state to a disorganized one, is a key structural pattern in the universe.<sup>116</sup> Change over time is “hardwired” into the universe by the fact that all energy is entropic. As Chemist Peter Atkins explains, “it illuminates why anything - anything from the cooling of hot matter to the formulation of thought - happens at all.”<sup>117</sup> Scientists Eric Schneider and Dorian Sagan argue that, “ecosystems converge in the way they handle energy” suggesting that “ecosystems and organisms organize similarly under energy flow” and the “expansion of the complex system is thermodynamically mandated.”<sup>118</sup> Energy binds together the constituent elements of a system into causal relationships and helps to order overall behavior, therefore changing the ways energy flows through a system

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<sup>115</sup> Andrew Shryock and Daniel Lord Smail, eds., *Deep History: Architecture of Past and Present*, (Berkeley: University of California Press, 2011), 82.

<sup>116</sup> Peter Atkins, *The Laws of Thermodynamics: A very short introduction*. (Oxford: Oxford University Press, 2010), 96.

<sup>117</sup> *Ibid*, xii.

<sup>118</sup> Eric D. Schneider, and Dorian Sagan, *Into The Cool: Energy Flow, Thermodynamics, and Life*, (Chicago: University of Chicago Press, 2005), 152.

can reconfigure its patterns of organization. “A linear increase [or decrease] in energy” writes Steven Johnson, “can produce nonlinear change in the system that conducts energy.”<sup>119</sup> In other words, measurable changes in quantities of energy can lead to novel and unexpected interactions between elements of a system, producing emergent behavior. Any system, whether biological, technical or otherwise, helps to stall the process of entropy by circulating energy before it dissipates, the more efficiently this is done the more stable the system, but it requires a constant input of energy from a source in order to bind the system together. Without the required energy input from a source a systems constituent parts will break down into the most stable configurations available.<sup>120</sup> The Prussian Siege had turned Paris into a nearly closed system, and without access to energy and materials, the internal processes of entropy began to accelerate. This led to the ecological breakdown of the city or what Holling and Gunderson term the *release phase* in ecological cycles. They explain, “a disturbance that exceeds the systems resilience breaks apart its web of reinforcing interactions... Resource that were tightly bound are transformed or destroyed as connections break and regulatory controls weaken. The destruction continues until the disturbance exhausts itself.”<sup>121</sup> This can be no more clearly illustrated than when the lights started going off around Paris and the near starving residents descended on the boulevards to cut down trees, burning them still green for heat.

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<sup>119</sup> Steven Johnson. *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*. (New York: Scribner, 2001). 111.

<sup>120</sup> Russell, Edmund, James Allison, Thomas Finger, and John K. Brown. "The Nature of Power: Synthesizing the History of Technology and Environmental History." *Technology and Culture*, Volume 52, Number 2, (2011), 252.

<sup>121</sup> Lance H. Gunderson and C.S. Holling, eds. *Panarchy: Understanding Transformations in Human and Natural Systems*, (Washington: Island Press, 2002), 7.

These changes to the underlying patterns of energy-matter flows through Paris helped catalyze a selection process that favored social relationships and institutional organization that provided stability. Ian Hodder describes catalysis as “untying” which “occurs as the entanglement accommodates and realigns in reaction to events.”<sup>122</sup> Critically, in the context of Haussmanizations core-periphery class structure, Hodder notes, “there is often a spatial component of untying entanglements. They are often most easily untied in places away from the center of an entanglement. It is in marginal peripheral areas where the entanglement is less dense, less regulated, less scrutinized that it can more easily be undone so that changes occur.”<sup>123</sup> In the marginalized habitats of the Faubourgs, socialist models provided many of the adaptive successes in response to the transformation of the city. Andrew Shrylock and Daniel Smail explain the relationship between social institutions and selection:

Increasing levels of connectedness provided a buffer against periods of hardship, thereby reducing mortality rates. Second, and perhaps more important, new habits of connectedness, together with the technologies for making those connections tangible, provided social infrastructure that would accommodate local resource stresses, future migrations, and population surges.<sup>124</sup>

Schneider and Sagan further illuminate the relationship between selection mechanisms and energy: “selection is framed in terms of increasing energy flow through autocatalytic matter-energy loops. Selective advantage will go to those autocatalytic systems that best increase energy flow through their system, those that do so better than

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<sup>122</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 166.

<sup>123</sup> *Ibid.*, 166

<sup>124</sup> Mary C. Stirner, Timothy Earle, Andrew Shryock and Daniel Lord Smail., “Scale” in *Deep History: Architecture of Past and Present*, (Berkley: University of California Press, 2011), 249.

their competitors.”<sup>125</sup> This process initiated by the siege and predicated upon biological necessity, would favor both revolutionary behavior as well as institutional forms best understood, if broadly defined, as socialist. The ability to use social structure to tap available energy and resources facilitated the self-organizing growth of a radicalized Parisian infrastructure.

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<sup>125</sup> Eric D. Schneider, and Dorion Sagan, *Into The Cool: Energy Flow, Thermodynamics, and Life*, (Chicago: University of Chicago Press, 2005), 243.

## SELECTION IN AN ADAPTIVE LANDSCAPE

*“The thought of the future torments us, and the past is holding us back.  
That is why the present is slipping from our grasp.”*  
-Flaubert<sup>126</sup>

Radical Transformations

On May 11 1871, radicalized Parisians faced off with the congregation of Saint Sulpice in a battle of song. The *Marseillaise*, *Magnificat* and others rang back and forth, echoing throughout the cathedral.<sup>127</sup> Ultimately, the Communards won out and the church was closed to religious services but kept open for political clubs. Throughout the Commune, revolutionary Parisians occupied and reshaped the social space of the city; churches became meeting halls and boulevards became barricades. That Paris underwent a profound transformation in its social structure is explicit due to three facts. First, during the course of the Siege revolutionaries made three significant attempts at insurrection without success. This is significant for it shows revolutionary Parisians were organized enough to launch three major assaults on the government, and that they could not sustain a revolutionary movement from the top down. Second, the nature of the revolt on March 18 was a rapid, undirected reconfiguration of power. The population met the governments attempted seizure of National Guard cannons with spontaneous resistance. The uprising caught the “professional” revolutionaries unawares and scrambling to develop coherence out of the day’s events. A final

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<sup>126</sup> Gustave Flaubert quoted in David Harvey, *Paris: Capital of Modernity*, (London: Routledge, 2005), 14.

<sup>127</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 231.

consideration, in the wake of March 18 revolutionary communes were proclaimed in the French cities of Toulouse, Narbonne, Lyon, Marseille, Le Creusot, and St. Etienne, yet none lasted more than a few days.<sup>128</sup> Despite the hardships Paris had suffered and the fact that the city rapidly entered into a second state of siege, Paris sustained itself for over two months. The Paris Commune was not simply a different government overlaid onto the city: rather, the city's social organization had been drastically altered.

The Siege physically transformed Paris' adaptive landscape, conferring selective advantage to relationships, practices and ideas that were most capable of reconfiguring themselves to the demands of the changed environment.<sup>129</sup> The order and continuity of cities arises from the connectivity and feedback between a multitude of interlinked communities, organizations, and institutions, some internal and some external to the city itself. In ecological terms, according to Hollings and Gunderson, "the connectedness between a mix of biological and physical interactions forms mutually reinforcing relationships. These relationships give rise to sustaining structures and processes that reinforce their own expansion and functionality."<sup>130</sup> However, the severe shock to Paris' resiliency broke down previous connections and facilitated new ones. A key feature of such loss of connectivity is a breakdown into constituent, stable forms of organization. This is precisely what occurred as the Prussian siege wore on, each arrondissement functioning as "more or less autonomous geopolitical unit(s)" and

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<sup>128</sup> Roger V. Gould, *Insurgent Identities: Class, Community, and Protest in Paris from 1848 to the Commune*, (Chicago: University of Chicago Press, 1995), 191.

<sup>129</sup> In this context adaptive landscape refers to the diversity of possible niches in an environment and the behavioral adaptations that potentially fit them.

<sup>130</sup> Lance H. Gunderson and C.S. Holling, eds. *Panarchy: Understanding Transformations in Human and Natural Systems*, (Washington: Island Press, 2002), 19.

taking increasing responsibility for the care of their populations.<sup>131</sup> From these component structures, like a body healing its wounds, new connections were able to develop. Much of Paris operated in the arrondissements during the siege: from them national guard units were formed, radicals created vigilance committees to function as watchdogs of local administrations; the Republican Central Committee of the Twenty Arrondissements represented and coordinated radicals from across the city. Indeed, “by December the mayors in several arrondissements created forerunners to soup kitchens, distributing around 190,000 meagre rations per day.”<sup>132</sup> It was in the Arrondissements and their constituent quartiers and neighborhoods that alternative municipal infrastructure flourished. Social historian Roger Gould’s assertion that the mobilization of Paris during the Commune involved a greater identification with community and municipal rights as opposed to class is valid. However, Gould’s view that the Paris Commune was not a “working class” movement only holds weight if one defines working class in terms of a theoretical category of socialism. Certainly, if one were to understand the Paris Commune as defined by a Marxist conception of “class consciousness” Gould is correct in arguing that it misses the mark. However, if one is to define “working class” more broadly as a *social niche* in a broader ecology, a niche with distinct material conditions and patterns of behavior, then it is correct to speak of the Paris Commune as being a “working class” phenomenon. It was the experiences, discourses and actions of people shaped by working class social niches that dominated the Commune, not from a position of high socialist theory but from an organic, practical level. Critical to understanding the Commune is David Harvey’s counter point to Gould

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<sup>131</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 46

<sup>132</sup> *Ibid.*, 49

that, while the Paris Commune emerged from community identity, these were “communities of class.”

What is undeniably apparent during the siege is the city’s elites were acutely aware of the appeal of revolutionary socialist ideas among poorer communities. In October, the *British Medical Journal* described the city thusly: “The food question, the socialistic gatherings, the constant boom of cannon, and the transformation of gay Paris into a grim arsenal and huge camp, painfully oppresses the spirits.”<sup>133</sup> At the end of the same month Edmund Goncourt described coming across “a group of women already talking fearfully of the division of property”<sup>134</sup> Regardless of the degree to which Parisian elites had created a “red” bogey man, it can be of little doubt that the privileged were cognisant of potential class conflict. Even before the Siege, the fear of revolutionary socialism was prevalent among the upper class. Mary Putnam, the first woman to study at the Ecole de Medicine, noted in a letter home on August 14:

There was much more fear of an insurrection at Paris than of the enemy- and the government, which strips the hospitals of their interns, does not hesitate to station 30 or 40 thousand soldiers at the capital... It is ridiculous to see how many people, who submit without a murmur to this outrage of the government upon two nationalities, and allow themselves to be robbed, ruined, and heart-broken by such an atrocious war, still keep up the old cry, ‘May Heaven preserve us from the Socialists! They are coming to destroy our property’! It is enough to make one sick.<sup>135</sup>

It is clear that class based revolutionary discourse was prevalent, and a high degree of agitation was originating from working class communities. While working class

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<sup>133</sup> “Special Correspondence” *The British Medical Journal*, Vol 2, No. 512 (1870): 440.

<sup>134</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 177.

<sup>135</sup> Mary Putnam, “Paris in 1870: Letters of Mary Corinna Putnam, *The American Historical Review*, Vol. 22, No. 4 (Jul., 1917): 838.

peoples may not have entirely framed conditions in terms of socialist theory, socialist discourse was both pervasive and popular amongst these populations.

As the constrictions of the siege began to squeeze the city it was the peripheral neighborhoods that, due to their class composition, were hardest hit; likewise they became foci of social agitation. In January, Ambassador Washburn explicitly identifies social unrest with class-based communities when he reports, “a crowd from Belleville of men, women and children surged towards the Hotel de Ville crying, ‘Donnez nous du pain!’”<sup>136</sup> The siege emphasized the core/periphery social distribution of Paris. As resources began to concentrate in wealthier district at the expense of poorer communities, the abandoned exurbs of Paris began to become sites of external resources for Parisians to harvest. Washburne wrote at the end of October “for a few days the people... have been going outside the ramparts into the small villages and robbing the houses of everything in them.”<sup>137</sup> Resource constriction created a far greater selective pressure on lower class arrondissements, quartiers and neighborhoods. Likewise, this gave alternative organizations in those areas more emphasis than in wealthier districts. It was in the degraded environments of peripheral communities, where radical organizing had already proliferated, that new connections were rapidly forming.

### Selective Services

As the effects of the siege began to worsen, the Parisian radical community wasted little time in organizing against a government they perceived as grossly

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<sup>136</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 141.

<sup>137</sup> *Ibid.*, 69

incompetent. The revolutionary Gaston Da Costa noted, “All across the city, revolutionary militants were active, and secret meetings were held at various locations, particularly in Montmartre and in the 13th and 14th arrondissements.”<sup>138</sup> A key feature in the organizational culture of working class communities were political clubs. Paris had a long tradition of radical club culture extending back to the first revolution. When Louis-Napoleon had legalized political clubs in June of 1868, they rapidly flourished throughout the city. However, during the Siege the formation and operation of these clubs began to expand dramatically with up to 30 different clubs operating per day.<sup>139</sup> Other than the Latin Quarter, the traditional seat of student and bohemian radicalism, the majority of the revolutionary clubs were located in distinctly working class communities such as Belleville and Montmartre.<sup>140</sup> A wall poster from the Thirteenth Arrondissement helps to illuminate the generally radical nature of these organizations, with one club declaring its goals as the “advent of the Democratic and Social Republic.”<sup>141</sup> The clubs helped to forge a network of political radicals that supported and expanded revolutionary agitation throughout the city. “High density networks,” De Landa explains, “act as efficient mechanisms for enforcing social obligations... density itself allows a network to impose normative consensus on its members.”<sup>142</sup> The

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<sup>138</sup> Gaston Da Costa. “The Commune Lived.” In *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 167

<sup>139</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 24

<sup>140</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 52.

<sup>141</sup> Eugene Schulkind, ed., *The Paris Commune of 1871: The View from the Left*, (New York: Grove Press, 1974), 77.

<sup>142</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 192.

feedback occurring between the siege and radical organization resulted in growing revolutionary infrastructure. As Daniel Smail explains, “the likelihood of a feedback loop correlates directly to the general interconnectedness of the system.”<sup>143</sup> We can glimpse this interconnectedness with examples such as the Club du Medicine financing the International’s newspaper *La lutte a outrance*.<sup>144</sup> Historian Martin Phillip Johnson notes, “Clubistes constituted not a social class but rather a culturally and politically defined revolutionary community.”<sup>145</sup> Much of the alternative organization that stepped into the political vacuum of March 18 formed out of the development of political clubs and radical networks during the siege. Indeed, during the failed revolution of October 31 a number of radical clubs played pivotal roles in assaulting the Mairie’s of ten arrondissements and capturing five.<sup>146</sup>

Again, the Prussian siege was vital in catalyzing popular organization. The circulation and distribution of material and energy within these communities helped to select for certain institutional settings. Specifically, the lack of fuel helped bolster club participation. In working class neighborhoods, it was often warmer to stand outside in December than stay inside houses. The lack of fuel also shut down other, less radical institutions that could have provided alternatives to the clubs but were less efficient in their energy use. The scarcity of fuel made the staging of theatre productions increasingly difficult, resulting in their total closure by January. With the closure of the

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<sup>143</sup> Daniel Lord Smail, *On Deep History and the Brain*, (Berkley: University of California Press), 134

<sup>144</sup> “Sessions of the International in Paris During the Commune: Session of January 26” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 217.

<sup>145</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 6.

<sup>146</sup> *Ibid.*, p. 27

theatres attendance at the clubs rapidly increased, especially amongst poorer communities. The political and economic theorist Gustave Molinari lamented, “la fermeture de theatres, accordait une veritable prime d'encouragement a la formation des clubs.”<sup>147</sup> (the closure of theatres, granted a veritable prime incentive to the formation of clubs) Thus the siege pushed working class communities out of their homes and into the radicalized environments of the clubs. Club gatherings provided literal insulation from the cold. At the end of December Washburne inadvertently made the connection between the clubs and fuel in his diary when he wrote, “they are bawling louder and louder at the clubs every night... Wood is becoming more and more scarce. I paid the day before yesterday forty dollars for less than a cord.”<sup>148</sup> The conditions of the siege were materially altering the cognitive environments of Parisians, changing the way information flowed through the city.

Beyond the clubs, the activities of committed radicals helped to reshape the adaptive landscape of Paris. As Johnson argues, the experiences of popular organization during the siege played a fundamental role forging “a viable revolutionary coalition and radical political culture”<sup>149</sup> Most arrondissements formed Vigilance committees comprised of twenty-five to thirty radical republicans agitating against the government.<sup>150</sup> The so-called “red virgin” of the Commune Louise Michel (1830-1905), describes the active and public nature of the Montmartre vigilance committee,

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<sup>147</sup> Gustave de Molinari, *Les clubs rouges pendant le siege de Paris*, (Paris: Editions du Seuil, 1871), 6.

<sup>148</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 121.

<sup>149</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 53.

<sup>150</sup> Donny Gluckstein, *The Paris Commune: A Revolution in Democracy*, (Chicago: Haymarket Press, 2011), 94.

“every evening we would burst out onto the streets from our headquarters, sometimes simply to talk up the revolution.”<sup>151</sup> The committees often formed political clubs in order to increase recruitment, and played key roles in the failed uprisings during the siege.<sup>152</sup> The vigilance committees also participated in the formation of broader coordinating networks such as the Central Committee of the Twenty Arrondissements. In a number of cases, the committees managed to gain control over town halls and key administrative functions throughout the siege.<sup>153</sup> Michel describes the critical social support provided by the committees:

The Montmartre vigilance committees left no one without shelter and no one without food. Anyone could eat at the meeting hall, although as the siege continued and food supplies became shorter, it might only be one herring divided between five or six people. For people who were really in need we didn't hesitate to dip into our resources or to use revolutionary requisitioning.<sup>154</sup>

Throughout the siege “revolutionary requisitioning” was increasingly practiced, from the cutting down of trees to the appropriation of food. At the end of the Siege Washburne recounted, “I hear that the people broke into the great central market today and seized everything they could lay their hands on. The market men were demanding the most extraordinary prices for everything that was eatable, and refused to make the least concession to the poor starving people.”<sup>155</sup> Ian Hodder explains the function of social infrastructure such as emerged in Paris, “the diversity of resources creates

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<sup>151</sup> Louise Michel and Nic Maclellan, Trans. *Louise Michel*, (New York: Ocean Press, 2004), 51.

<sup>152</sup> Martin Phillip Johnson, *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*, (Ann Arbor: The University of Michigan Press, 1996), 27.

<sup>153</sup> *Ibid.*, 24

<sup>154</sup> Louise Michel and Nic Maclellan, Trans. *Louise Michel*, (New York: Ocean Press, 2004), 52.

<sup>155</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 146.

sustainability, but equally the complexity of the entanglements creates a dense network of dependencies that can be drawn upon when needed. This is a form of ‘social storage’... the heterogeneous mosaic itself creates resilience and stability.”<sup>156</sup> However, much of the critical infrastructure during the siege did not stem from revolutionary activity and the growth of radicalism in the city was far from a linear process.

The National Guard was undoubtedly the single most important organization operating in the city during the siege. Sixty National Guard units composed of bourgeois citizens formed in August; however, the new government created another 194 battalions by October, almost entirely composed of working class populations.<sup>157</sup> With 360,000 members, and one of the sole sources of income, the guard was a key feature in shaping the Parisian environment. Drawn from local communities and extremely democratic, the guard elected the commanders of their own battalions to function as delegates to the central committee of the National Guard. Again, we see siege and selection play a role. Beyond simply being the impetus for the formation of the guard, the siege’s constriction of the economy helped to push working class populations into the guard for employment.<sup>158</sup> Furthermore, the structure of the National Guard helped to deselect and diffuse radical organizations such as the International. In the group’s minutes from January 5 the bookbinder and tireless organizer Eugene Varlin (1839-1871) states that since September 4 the organization

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<sup>156</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 188.

<sup>157</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 34.

<sup>158</sup> Roger V. Gould, *Insurgent Identities: Class, Community, and Protest in Paris from 1848 to the Commune*, (Chicago: University of Chicago Press, 1995), 177.

had lacked funding to pay for printing of newspapers or covering old debts. Varlin and others expand upon this situation in the minutes of January 12 explaining that the bronze workers and cabinetmakers were dispersed among the National Guard units and unable to pay dues as sections. In later minutes, this list extends to lithographers, bakers and other “corporations,” succinctly explained by internationalist Rouveyrolles, “the sections are ruined and the workers dispersed.”<sup>159</sup> The siege disrupted the operations of many of the radical organizations by the diffusing their constituents throughout the Guard. Gaston Da Costa observed that, “Since the besieging of Paris by the Prussians, the Blanquist party had sent its men into the battalions of the National Guard, and in doing so lost all cohesion... When the insurrection of March 18 broke out, the Blanquist party, remaining dispersed, had great difficulty in reconstituting itself on the battlefield.”<sup>160</sup>

However, this dispersal did play a key role in both the radicalization of the National Guard and what can, in the very least, be described as the development of socialist sympathies among its ranks. While the National Guard units formed at the community and neighborhood level, the degree to which socialist ideas appealed to working class populations is clear with the multitude of radicals elected to command positions, including figures such as Gustave Flourens, Varlin and other well-known revolutionaries. Augustin Avrial, who represented the eleventh arrondissement during the Commune, displays the pervasiveness of socialist rhetoric in his successful election

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<sup>159</sup> “Sessions of the International in Paris During the Commune; Minutes from Session of January 5; Minutes from Session of January 12; Minutes from Session of the Federal Council of January 19, 1871” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 208-215.

<sup>160</sup> Gaston Da Costa. “The Commune Lived.” In *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed. (Pacifica: Erythros Press, 2010), 173.

bid for commander of the 66th battalion of the National Guard. Avrial declared in his candidacy speech that, “What I want is a radical renovation of society based upon eternal principles of Justice and Law... a social contract that will guarantee to each worker the full product of his labor, and will enable the people to enjoy the benefits of higher education.”<sup>161</sup> While this does not mean that working class Parisians operated purely from a place of “class consciousness” and socialist struggle, such language in conjunction with the number of radical socialists elected attests to the degree that socialist discourse was a shared and appealing vocabulary amongst working class Parisians.

### Revolutionary Adaptations

In sum, the conditions of the siege helped to emphasize class divisions as social niches. Transformations in the flows of energy and matter facilitated Parisians engaging with alternative cognitive environments and new forms of collective action. This selection pressure intersected with radical culture, reshaping the flow of information in Paris’ cognitive ecology. De Landa clarifies the relationship between information and organization:

The role of genetic and cultural replicators... is to act as catalysts that facilitate or inhibit self-organizing processes made possible by intense matter-energy flows. It is these flows that determine the nature of the thermodynamic stable states available to a system; the catalysts act merely as a control mechanism, choosing one stable state over another.<sup>162</sup>

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<sup>161</sup> Augustin Avrial, “Augustin Avrial declaration of principles for election as commander of NG battalion November 1870” In *The Paris Commune of 1871: The View from the Left*, Eugene Schulkind, ed. (New York: Grove Press, 1974), 75.

<sup>162</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 147.

In other words, the siege acted to catalyze a search for stable configurations in the Parisian ecology. This selection emphasized new networks of cooperation that emerged as the former connectivity of Parisian social organization began to break down. Radical organizations in Paris helped to facilitate the emergence of new networks through practices of mutual aid that helped alleviate the destitution wrought by the Siege. This further augmented their role as alternative social support structures. The adoption of seven orphans from Bagtinolles and Ternes sections by members of the International demonstrates this point.<sup>163</sup>

The isolation and constriction of Paris created the conditions in which experimentation reconfigured a vast number of structural elements and cultural practices to provide more efficient production and distribution of resources within communities. De Landa explains, “Coupling variable replicators with a selection pressure results in a kind of ‘searching device’ (or probe head) that explores the space of possible forms”<sup>164</sup> It was this space of possible form that Parisian communities were actively exploring to counter the effects of the Siege. However, to understand the dynamics of selection it is necessary to understand how information moves through and shapes self-organizing systems. Thus, it is critical to investigate how millions of Parisian citizens, through material engagement, reshaped the flows of information to make new forms of cognitive ecology and collective action possible. As the journalist Paschal Grousset (1844-1893) reflected, “2,000,000 men [sic] don’t rise up without

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<sup>163</sup> “Sessions of the International in Paris During the Commune: Minutes from Session of January 26.” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 217.

<sup>164</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 139

reason, don't fight for nine weeks and don't leave 35,000 corpses on the streets without having good reasons."<sup>165</sup>

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<sup>165</sup> Paschal Grousset, "Inquiry on the Commune" in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 54.

## COGNITION IN THE CITY

*“All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away; all new-formed ones become antiquated before they can ossify. All that is solid melts into air, all that is holy is profaned, and man is at last compelled to face with sober senses his real conditions of life and his relations with his kind.”*

— Karl Marx, *The Communist Manifesto*<sup>166</sup>

Cognitive Materials

On September 4, when the Second Empire collapsed and Parisians proclaimed the Third Republic, Edmund Goncourt was standing at the Hotel de Ville. “Many were carrying branches in their hands and had green leaves fastened to their hats. There were a few soldiers with twigs tied to the barrels of their rifles,” he recalled. As the scene unfolded, “right at the top of the facade, a man tore the blue and white stripes from the tricolor, leaving only the red waving in the air.”<sup>167</sup> The red flag developed revolutionary significance during the 1789 revolution; however, over the course of the nineteenth-century it had increasingly become identified with revolutionary socialism. After the suppression of the workers during the June uprising of 1848, Blanqui wrote, “The tricolor flag... has been twenty times bathed in the blood of the workers. The people raised the red colors on the barricades in ’48, just as they raised them on those of June 1832, April 1834, and May 1839... From this day on, these colors are theirs.”<sup>168</sup> From strapping branches to rifles and ripping the flag, Parisians purposefully altered materials

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<sup>166</sup> Karl Marx and Frederick Engels, *The Communist Manifesto*, (New York: International Publishers, 2003), 12.

<sup>167</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 170

<sup>168</sup> Louise August Blanqui, “For the Red Flag” *In Selected Works of Louise August Blanqui*, (EatDogEat Publishing, 2011), 89.

in the physical environment to facilitate new ways of conceptualizing the changing circumstances.

The significance of what the anonymous individual did atop the Hotel de Ville would not have been lost on anyone who saw it. What the action of tearing the Tri-Color helps illuminate is the plasticity of social space in shaping experience. The liberal leaders that situated themselves in control of the September 4 revolution wanted a moderate, political republic. However, the altering of the tricolor made clear that there were those present ready to demand the Social Republic. This process of “material signification” argues Malafouris, facilitates adaptive engagement with a complex environment:

The material sign does not primarily embody a communicative or representational logic but an enactive one. For material semiosis meaning is not a product of representation; it is a product of conceptual integration between material and conceptual domains.<sup>169</sup>

What is commonly referred to as symbolic thought appears to be co-instantiated with material semiotics. Though not fully understood, this process involves information outside the body and cognitive processes beyond the range of consciousness that enable rapid adaptation. Such material signs provide a scaffolding that supports and catalyzes interaction on an individual and collective level.

The red flag provides an excellent example of an enactive material sign that facilitated Parisians reshaping their cognitive environments. The physical properties of flags, colorful and dynamic in the wind, attract the eye. The red flag, entangled with its respective discourses, was a way of projecting possibility as well as demarcating space, both in terms of territorial possession and contestation. Among the first things done

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<sup>169</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 18.

when the Commune occupied a space was to raise the red flag. When the revolutionaries occupied the forts of the left bank on March 18, the citizens of Paris quickly saw the “red flag flying over the three fortresses.”<sup>170</sup> Ambassador Washburne noted the entanglement of the flag, the Commune and spatial relations when he wrote, “The Commune and the Red Flag is everywhere.”<sup>171</sup> The red flag communicated the geography of revolution. Parisian citizens were capable of reading the organizational state of their city, the territoriality of ideas, simply by scanning the skyline. “A common feature of mark making,” Malafouris explains:

Is that it is able to transform humans direct and immediate perceptual relation to the world. Such a shift in perception affords and stimulates new opportunities for enactive thinking. An interesting feature of this cognitive ecology of mark making is that it can leave persistent and visible material traces that alter the epistemic landscape of activity and thinking.<sup>172</sup>

The flags functioned as cognitive or epistemic artefacts, external media used “as both additional memory and as potent symbol-manipulating arenas.”<sup>173</sup> The visual perception of the flags allowed for a quick sampling of data so that people could understand the overall condition of events such as military contestation. For example, during the Communes occupation of Chatou and Bougival red flags were raised from the towns belfries for two hours.<sup>174</sup>

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<sup>170</sup> Henri Bellinger, “Men and Things from the Time of the Commune: The Sortie of April 3” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 134.

<sup>171</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 167.

<sup>172</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 205.

<sup>173</sup> Andy Clark, “Where Brain, Body and World Collide” in *Material Agency: Towards a Non-Anthropocentric Approach*. eds. Carl Knappet, and Lambros Malafouris. (New York: Springer, 2008), 12.

<sup>174</sup> Elie Reculs, “The Paris Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 101.

Traditional accounts of the Commune tend to focus on elements such as the political tensions, economic forces, demoralization of soldiers and discourses that all played a role in triggering the insurrection of March 18. While these are all important factors, they do not tell the whole story. Anyone who has ever tried to organize a protest of even a few dozen people will attest the difficulty of coordinating elements such as marching routes, message and specific actions taken. The difficulty of organizing a revolution is another order of magnitude entirely. Yet, Parisians spontaneously overthrew their government without command from any centralized authority. Critical to understanding this is the role of information in the self-organization of complex systems. In the case of the Commune, there are linguistic elements to this flow of information that are readily apparent such as revolutionary posters, newspapers and speeches. However, there is a more basic, immediate sense of information as inputs to a system that are measurable in terms of the reactions elicited. In other words, information flows through systems in ways that support or negates possible behaviors and actions. “The focus” states Clark, “shifts from accurately representing an environment to continuously engaging that environment with a body so as to stabilize appropriate co-ordinated patterns of behavior.”<sup>175</sup> Though linguistic information plays an incredibly significant role in human organization it is also critical to look at how cultural objects as material signs externalize “the processing of information” in non-representational ways.<sup>176</sup>

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<sup>175</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 16.

<sup>176</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 73.

During the attempted revolution of October 31, Edmund Goncourt described the square at the Hotel de Ville as “a forest of rifle butts raised in the air.”<sup>177</sup> The use of the reversed rifle stocks to communicate information in a distributed, non-representational manner is an excellent example of how human beings utilize materials as cognitive “scaffolding.” Malafouris expands upon this concept, arguing that:

To interpret the material sign is not to provide a verbal substitute for it; rather, it is to become habituated with the interactive possibilities and consequences of its performance in context... material signs do not represent; they enact. They do not stand for reality; they bring forth reality.<sup>178</sup>

The habit of flipping rifle stocks was a common practice at the time for indicating peaceful intent as well as revolutionary behavior. As material signs, the reversed rifles were “tagged,” as Andy Clark explains, so that “complex properties and relations in the perceptual array are, in effect, artificially reconstituted as simple inspectable wholes. The effect is to reduce the descriptive complexity of the scene.”<sup>179</sup> By reducing the “descriptive complexity of the scene” such “cognitive artefacts” aid the rapid processing of large sets of information by individuals and groups enabling them to modify behavior appropriately. Under the right circumstances, this externalized information can help produce something as astounding as the reorganization of a city of over a million people in a single day. The flipping of the rifle butts in the air allowed for a quick, visual communication of the overall state of the various armed groups, providing rapid informational feedback. From the perspective of the individual, seeing the reversed rifles would allow them to assess the degree of danger with a rough and

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<sup>177</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 177.

<sup>178</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 118.

<sup>179</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 46.

ready statistical calculation of the crowd's disposition. Clark describes the physiological process involved in such a type of information gathering, "when our brains detect a sudden flash and our eyes automatically saccade [rapid eye movement] in that direction, the motor routine embodies a kind of hard-wired implicit metacognitive commitment to the effect that we may gain useful, perhaps life saving, information by such a rapid saccade."<sup>180</sup> A converse to this story comes from the brief Prussian occupation of Paris on March 1, 1871. A crowd of angry, heckling Parisians met the soldiers when, "a portion of the German troops then halted and with great deliberation loaded their pieces, whereat the crowd, composed of boys and 'roughs' incontinently took to their heels."<sup>181</sup> Thus, we can see that materials within the city functioned as information conduits that helped to organize collective behavior, and reshape cognitive environments through feedback from dynamic engagement.

### Epistemic Engineering

Material elements such as guns and flags are only components of the cognitive scaffolding through which Parisians adapted to changing conditions. Paris itself provided the overall cognitive architecture. Steven Johnson describes the city as, "a kind of pattern amplifying machine: its neighborhoods are a way of measuring and expressing the repeated behavior of larger collectivities-capturing information about group behavior, and sharing that information with the group. Because those patterns are fed back to the community, small shifts in behavior can quickly escalate into larger

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<sup>180</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 74.

<sup>181</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 151.

movements.”<sup>182</sup> A city is, in a sense, the congealing of materials such as stone, timber and steel, into configurations capable of supporting human habitation. A key part of the way in which these materials support human habitation is how they support behavior and cognitive processes. Malafouris discusses the role of the spatial environment in the thought process, “the distributed cognitive space is not simply the passive background against which the activity unfolds; it is something that can be used as a cognitive artefact.”<sup>183</sup> As Patterns of habitation emerged in Paris over the years, certain areas were dominated by craft workers or commercial interests, others areas came to be identified with particular cultures, behaviors, ideas and services such as the Bohemian left bank. Clark terms this “Cumulative downstream epistemic engineering” in which:

Groups of humans engineer their own habitats and these are transmitted to the next generation, who further modify the habitat. Importantly, some of these modifications are to the epistemic environment and affect the informational structures and opportunities presented to each subsequent generation.<sup>184</sup>

Spaces within the city, modified by human habitation over time, were inscribed with certain qualities, and under specific condition, supported certain behaviors. There are few better examples in history of this phenomenon than the Hôtel de Ville.

The administrative seat of Paris was embedded into the organizational memory of the city as the nexus of revolution since 1789. Described as the “mecca of protest” in a brochure from the era, every successful revolution in France was proclaimed on the

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<sup>182</sup> Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*, (New York: Scribner, 2001), 40.

<sup>183</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 67.

<sup>184</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 66.

Hôtel de Ville's steps.<sup>185</sup> The Place de Grève, the square in front of the Hôtel where crowds gathered, had long been imprinted with particular social relationships such as public executions, migrant labor markets, and intense surveillance by authorities. Historian Casey Harrison helps explain the structural qualities that facilitated these relationships, "as the physical center of the city and one of its largest open areas, the square was also a natural setting for the germination of crowds."<sup>186</sup> The Hôtel de Ville, a location long imbued with the spectacle of political power and contested social space, provided critical cognitive scaffolding for engaging with processes of revolution. De Landa argues that, "once the internal operations of an organization have become routinized, the routines themselves constitute a kind of 'organizational memory.'<sup>187</sup> When revolutionary conditions presented themselves large masses of peoples would gather in the square and demand a new government. In a sense, the physical space of the Hôtel de Ville functioned as a device for the storage of a collective revolutionary "memory" and when the correct conditions were present people would gather and "execute" a revolutionary "program." In the Hôtel de Ville, we can see that concept of the "cognitive niche," that Clark explains as a process whereby, "physical structures combine with appropriate culturally transmitted practices to enhance problem solving and, in the most dramatic cases, to make possible whole new forms of thought and reason."<sup>188</sup> Here we begin to see how cognitive niches formed in the material environments of Paris.

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<sup>185</sup> Casey Harrison, "The Rise and Decline of a Revolutionary Space: Paris' Place de Greve and the Stonemasons of Creuse, 1750-1900", *Journal of Social History*, Vol 34, No. 2 (2000), 405.

<sup>186</sup> Ibid., p. 412

<sup>187</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 146.

<sup>188</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 63.

New Ways of Thinking

Paris' cognitive ecology was composed of a multitude of cognitive niches, from specific districts, to particular institutions such as cafes. Such niches were layered at different scales throughout the city. Some like the Hôtel de Ville provided larger, more deeply embedded structure, while others, like political clubs, provided smaller, more specific cognitive environments. Regardless, the materials that circulated in such spaces provided conduits for shaping flows of information. Louise Michel gives an example from the Montmartre Vigilance Committee that shows the subtle plasticity of such environments:

I still have an old map of Paris that hung on the wall of our meeting room. I carried it back and forth across the ocean with me as a souvenir. With ink we had blotted out the empire's coat of arms, which desecrated it and which would have dirtied our headquarters.<sup>189</sup>

Actions such as the tearing of the flag, tying branches and leaves on rifles, and obscuring the coat of arms were all means of modifying the environment in order to facilitate alternative possibilities. The purpose of such “epistemic actions” as Malafouris explains, “is not simply to alter the world so as to advance physically toward some goal, but rather to alter the world so as to help make available a new way of thinking about it.”<sup>190</sup> Here we see thinking not as a disembodied abstraction, but as causal process constantly mediated through the environment.

The physical organization of the city was structured to communicate certain forms of information, eliciting particular types of behavior such as consumption or

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<sup>189</sup> Louise Michel and Nic Maclellan, ed. *Louise Michel*, (New York: Ocean Press, 2004), 51.

<sup>190</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 194.

craftwork. Under certain conditions very specific behaviors such as revolutionary upheaval emerged. The city structured flows of energy-matter in ways that bound together certain cognitive environments and behaviors. As the Prussians altered these flows, certain bonds and continuity broke down while others emerged, such as the relationship between fuel, theatres and clubs. Parisians responded to these environmental conditions by modifying the materials of the city to communicate and facilitate new forms of organization. As Edwin Hutchins points out, “Cultural things provide the meditational means to domesticate the embodied imagination.”<sup>191</sup> As the physical and biological environment increasingly broke down under the effects of the siege, the need for alternative structure increased. To meet this need Parisians increasingly altered their environments, from cutting down trees, to establishing canteens and radical presses. Through a process of feedback, the collapse of the urban ecology led to the transformation of the city’s cognitive environments and the expansion of innovative networks of organization.

### Reorganization

Following the armistice on January 28, 1871, food and resources came flooding back into the city as a vast number of wealthy Parisians left. This included between 50,000 and 140,000 bourgeois National Guardsmen, significantly altering the class composition of the city.<sup>192</sup> This, in combination with electioneering by Monarchists to control the National Assembly and the humiliations of defeat, had created deep tensions

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<sup>191</sup> Edwin Hutchins, “Imagining the Cognitive Life of Things” in *Cognitive Life of Things: Recasting the Boundaries of the Mind*, (Cambridge: McDonald Institute Monographs, 2010), 99.

<sup>192</sup> David A. Shafer, *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*, (New York: Palgrave Macmillan, 2005), 57

within Paris. In response, on February 15 the remaining National Guard battalions, originating almost entirely from popular districts, formed the Central Committee to act as a coordinating body to protect the Republic. The first actions of the Central Committee were in response to the stipulation of the armistice that the Prussian army occupy a section of Paris for three days.

With incredible restraint, Parisians transformed their city to communicate their disdain for the German Parade. Flags and Shop windows were draped in black, the city shut down and the conquerors observed with scorn.<sup>193</sup> Ambassador Washburne recalled:

From the Boulevard du Temple to the Arc of Triumph not a store or a restaurant was open... There are no excited crowds on the boulevards, and, what is very remarkable and without precedent in the memory of the 'oldest inhabitant,' not an omnibus is running in the whole city... neither is there a private or public carriage to be seen... Paris seems literally to have died out. There is neither song nor shout in all her streets... The gas is not yet lighted, and the streets present a sinister and somber aspect. All the butchers', and bakers' shops in that part of the city occupied by the Germans are closed.<sup>194</sup>

However, the single most important action taken by the Central Committee was the removal of National Guard artillery to cannon parks in working class districts.

By the time the siege was lifted, the cognitive and social ecology of Paris had been radically altered; all it would take were the right catalysts to flip the city into a new state. The decision by the National Assembly at the beginning of March to end the moratorium on the sale of goods at state pawnshops, and make back rents and bills due helped to consolidate working and middle class interests. Working class peoples, who

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<sup>193</sup> Alistair Horne, *The Fall of Paris: The Siege and the Commune 1870-71*, (London: Penguin Books Ltd, 2007), 263.

<sup>194</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 152-53.

had pawned tools during the siege, and petit bourgeoisie merchants who suddenly facing bankruptcy, found their livelihoods at stake. However, the National Guard artillery had become the greatest point of contention. For Adolphe Thiers and the National Assembly it was the single most significant impediment to the new regimes consolidation of power. To the radicalized Parisians the armaments were the only safeguard of the Republic and their independence. Communities financed the Cannons through public subscription and the donation of household goods to be melted down and cast into artillery. Due to this, there was a deeply held sense of ownership that extended beyond the political independence afforded by the cannons. Archaeologist Ian Hodder notes, “things in the networks are the foci of debts, obligations, rights” through which “processes of identification and ownership become activated. The things assembled also assemble human alliances, subjects, duties, attachments.”<sup>195</sup> The fate of Paris was entangled with the cannons.

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<sup>195</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 44.

## EMERGENCE

*“They follow the flame of the red flag”*

*-Elie Reclus<sup>196</sup>*

Revolt

It was dark when the military deployed to the Cannon Park atop the Butte of Montmartre. The National Assembly ordered the soldiers to take possession of the ordnance. As the sun rose over the city, people awoke to find that soldiers had overrun the National Guard checkpoints and controlled the artillery. Awareness of the situation grew with mounting intensity, bells rung and people streamed out of their homes; crowds of women, children, and the elderly, surrounding the soldiers, raised the alarm. Yelling at them, pleading, “the women of Paris covered the cannon with their bodies.”<sup>197</sup> Soon National Guardsmen joined the tumult. Four times General Lecomte ordered the soldiers to fire on the crowd and four times the soldiers refused. Calling out to one another, National Guardsmen and soldiers began to reverse their rifles so that the stocks raised in the air. One anonymous eyewitness account from the events describes a clear positive feedback loop in the reversing of rifles among the soldiers:

Rifles were placed on shoulders; muzzles of cannons were lowered. The crowd trembled but it did not budge. In a short but profound silence, the word resounded, “Fire!”

The agony was piercing. The national guardsmen prepared to avenge the crowd if the troops fired.

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<sup>196</sup> Elie Reclus., “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 112.

<sup>197</sup> Louise Michel and Nic Maclellan, ed. *Louise Michel*, (New York: Ocean Press, 2004), 35.

They refused to obey. One gun, then ten, then a hundred were turned up, and it seemed that the death that had hovered over this multitude took flight and spared them.<sup>198</sup>

With stunning rapidity, the French regulars “surrendered their chassepots and even cried *Vive la République!* ...the bulk of the soldiers went over to the people.”<sup>199</sup> The crowd surged forward and embraced the mutineers, disarming the officers and gendarmes before they could counter. It was the catalyst triggering an insurrection that cascaded through Paris, as Michel recalled, “the other districts of Paris, hearing of the events taking place on the Butte of Montmartre, came to our assistance.”<sup>200</sup> By the end of the day, the national Government ordered the immediate evacuation by all that obeyed and revolutionary Parisians controlled the city. It was a spontaneous and drastic reconfiguration of social power in Paris, a product of material-cognitive entanglements strengthened by the siege.

When the soldiers were attempting to seize the guns from the National Guard, the situation was intensely chaotic. A mass of angry, electrified people, some of them armed, shouting and yelling from all directions surrounded the armed men; bells, bugles and drums all sounded while the order to fire on the crowd rang out. Only a few months before, on January 22, soldiers had opened fire on a protest at the Hotel de Ville and killed some fifty civilians. The actions of soldiers and national guardsmen flipping butts in the air created feedback that helped the dynamics of rebellion become self-reinforcing, producing a phase transition in social organization. As cognitive artefacts, the rifles formed “material anchors” that grounded cognitive processes in a tumultuous

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<sup>198</sup> Anonymous: *Verite sur la Commune* quoted in Gay L. Gulickson., *Unruly Women of Paris: Images of the Commune*. (Ithaca: Cornell University Press, 1996.), 42.

<sup>199</sup> Prosper-Olivier Lissagaray, *History of the Paris Commune of 1871*, (London: Verso, 2012), 66.

<sup>200</sup> Louise Michel and Nic Maclellan, ed. *Louise Michel*, (New York: Ocean Press, 2004), 35.

environment. Reversed rifles allowed citizens and soldiers to literally see each other's thoughts and feelings. Emboldened by the numbers that were refusing to fire the crowd began embracing and speaking with the soldiers. Bodies, sounds and materials created feedback that communicated the conditions and possibilities of the situation. Material signs such as the reversed rifles helped intensify flows of information supporting rebellious behavior and solidifying new relationships. In the words of Malfouris, "the material physical qualities of artefacts do not depend on mental states but rather constitute those states."<sup>201</sup> In other words, by allowing Parisian to spatially process an insurrectionary moment the rifles formed part of the scaffolding on which the Commune was built.

### Revolutionary Configurations

On Sunday 19, the day after the failed attempt by the National Assembly to seize the cannons, new configurations of power were already inscribing themselves upon Paris. Goncourt wrote of the Hôtel de Ville that it was surrounded by "barricades, with cordons of national guard lined up front... a red flag was flying, and down below, the square was swarming with an armed mob behind three guns."<sup>202</sup> Though dedicated revolutionaries were initially caught unawares, the radical models developed during the siege were able to quickly step into the power vacuum and reorganize Paris. In tandem with the vigilance committees established by various radical clubs, National Guard units actively seized the Maries of their respective arrondissements. The Central Committee, the organizational hub of the revolutionary National Guard, processed

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<sup>201</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 164.

<sup>202</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 184.

flows of information and coordinated the takeover. By March 25 Elie Reclus (1827-1904), brother of the famous anarchist geographer Élisée Reclus, recounted:

Most town halls are in the hands of the Central Committee. Despite much clamour, several were occupied by National Guard battalions that immediately installed new mayors and provisional deputy mayors... two or three town halls still occupied by bourgeois battalions with rifles and machine guns.<sup>203</sup>

The following day elections were held and on March 28, the Commune was declared. Composed of an unprecedented number of working class peoples it gave voice to a vast spectrum of Parisian experiences.

There is an important distinction to be made about the Commune. That is whether the term Commune refers specifically to the administrative body that presided over Paris in the spring of 1871 or if the Commune refers to Paris as a society during that period. This is important because as a political body, the Commune was largely ineffectual. At its best, the administrative body was a coordinating mechanism for the multitude of operations going on in the city. At its worst, it was responsible for institutional inertia that inhibited adaptation to changing circumstances. Though it passed a number of innovative policies few were implemented, granted some of those that were bore significance.

The degree of democratic freedom in the Commune's elections is impressive. Chosen as representatives were seventeen members of the International, thirteen members of the Central Committee, seven Blanquists, nine members of the radical press and revolutionary party, twenty one member of various radical clubs and even fifteen

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<sup>203</sup> Elie Reclus, "The Commune Day by Day" in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 90.

moderates, monarchists and other conservative bourgeoisie.<sup>204</sup> As a political body, it was a meshwork representing nearly every trend of French thinking available. The Commune was able to step into the political vacuum and take over the administrative operations of the city with relative ease. This is all the more impressive given the diversity of its assembly and their general lack of experience with such affairs. Simon Dereure (1838-1900), a cobbler elected to the Commune, recounted, “all services were easily reorganized and functioned with no difficulty.”<sup>205</sup> Dr. John Murray, correspondent for the *British Medical Journal*, corroborates this. By no means sympathetic to the “Communists,” he wrote:

It must not be thought that the Commune has by any means neglected to attend to the health of the population. The night-soil is removed betimes in the morning; the hospital service has been conducted by the Assistance Publique as usual; and general comfort of the citoyens, as they are now called and call each other, has not been ignored: the systematic watering of the boulevards I saw carried on even where bomb-shells were not infrequently falling.<sup>206</sup>

There were a number of important social initiatives that the Commune managed to implement, such as the postponing of rents and debts due as well as the abolishment of night work in the bakeries. The Commune also managed to make significant alterations to the material structure of Paris with the destruction of the Vendôme Column. The monument was erected by Napoleon in celebration of the Empire in 1810. Made of bronze it was forged from Russian and Austrian cannons that Napoleon had captured and melted down. Long reviled by the left as a symbol of imperial hubris, it

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<sup>204</sup> Benoit Malon, “The Third defeat of the French Working Class” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 154.

<sup>205</sup> Simon Dereure, “Inquiry on the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 59.

<sup>206</sup> John Murray, “Four Days in the Ambulances and Hospitals of Paris Under the Commune” *The British Medical Journal*, Vol. 1, No 544 (1871), 596

took nearly a month for the Commune to prepare its toppling. Communards sealed off windows for a half mile to prevent them from shattering; laying the ground where it would fall with manure and straw to prevent it from damaging the road beneath; building the scaffolding, rope and pulley system with which to bring it down. It proved one of the largest spectacles to occur during the Commune. Elie Reclus recounted:

The crowd was enormous; it was parked on and around the square for several days waiting for the event. The column had been sawed obliquely at the level of the pedestal, and the men had dug up the earth in front of it, replacing dirt with struts. Cords passed around the neck of the false gentleman of bronze were wrapped around the capstan. At 5:35 p.m. to the simple blow of a whistle, with no blow of a cannon, the capstans turn, the struts fall, the statue gently moves as if stupefied, it tilts back looking at the blue sky. Boom! It lies in the manure twenty to thirty feet deep. It fell deeper than the manure and buried itself in the blacktop. While still in the air the column had broken and the head of the perjurer had separated from the trunk, the murder's arm was cut, the hand that held Victory was smashed.<sup>207</sup>

The people of Paris were re-engineering their environments and the information it communicated to make available new collective behaviors. If physical space functions as a form of external memory, then demolishing the column can be understood as a process of forgetting. Yet, it was a minor surgery when compared to the lobotomies of Haussmanization,

### From the Simple to the Complex

Nine years later, reflecting on the aftermath, anarchist theorist Peter Kropotkin criticized the Communes administration for not seeking to effect “that organization from the simple to the complex which it inaugurated.”<sup>208</sup> It was the assemblage of

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<sup>207</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 113.

<sup>208</sup> Peter Kropotkin, “The Commune of Paris” In *The Commune: Paris 1871*, Andrew Zonneveld ed., (Georgia: On Our Own Authority! Publishing, 2013), 54.

small-scale organizations that preformed the major functions of operating the city, from local ambulances, food canteens, to barricade construction and the like. Maxime Vuillaume, editor of the newspaper *Père Duchêne*, shows this function even with small printing operations such as his:

On the Rue du Croissant we had a small shop where we sold La Social and Pere Duchene. How many visits we received during those months! Everyone came to the Pere Duchene, the women came to work while the husbands fought. We placed some of them in hospitals to take care of the sick, others in munitions workshops wherever we could.<sup>209</sup>

The administrative body of the Commune often acted merely to formalize the relationships of organizational networks forged to maintain the city. For example, on April 16 the Commune decreed, “abandoned factories were to be handed over to ‘the cooperative association of workers who were employed in them.’”<sup>210</sup> However, as historian Robert Tombs notes, “Foundry workers took an early initiative” establishing a cooperative society on April 15, 1871. Five days later the Iron Founders Society requisitioned its first factory and took over a second factory at the beginning of May. Manufacturing shells for the Commune, it had 240 employees, “a very large concern by Paris standards, the average firm in the metal industry employing between eight and nine workers.”<sup>211</sup> Though it appears that the overall number of cooperatives in the city declined during the Commune from 46 to 27, this is consistent with the overall deterioration of Paris beginning with the siege.<sup>212</sup> Regardless, the difference in the numbers of workers between pre-Commune averages and the cooperatives that came

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<sup>209</sup> Maxime Vuillaume, “Men and Things from the Time of the Commune: Pere Duchene” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 150.

<sup>210</sup> Robert Tombs, “Harbingers or Entrepreneurs? A Workers’ Cooperative during the Paris Commune” *The Historical Journal*, Vol. 27, No. 4 (1984), 969.

<sup>211</sup> *Ibid.*, 971

<sup>212</sup> *Ibid.*, 976

into being during the Commune indicates a significant growth in organizational complexity. However, the emergence of Cooperatives such as the Iron Founders was not a radical break from the past, but an outgrowth of socialist engagement. Tombs explains, “Cooperation, far from being a bold experiment, was a familiar, respectable, even somewhat old fashioned idea, with echoes of the utopianism of 1848 and forelock-tugging of Second-Empire Proudhonists.”<sup>213</sup> However, the Commune provided a context in which these experimentations could explore new spaces of possible form.

All over Paris a multitude of practices that had developed throughout the century, or sprung out of necessity during the siege, were deployed to operate the city. Dr. Murray, corresponded:

the ambulance arrangements of the Commune, at first very incomplete, are now assuming a more or less organized form... each arrondissement has its own service, its ambulances and its civil hospitals... The various ambulances de la Presse which were organized during the siege have been again opened and numerous other smaller ambulances are at work.<sup>214</sup>

From ambulances caring for the wounded, women’s unions sewing uniforms and making sand bags for barricades, canteens distributing food to communities, and radical papers, a unique entanglement of information, materials and social relationships emerged to maintain the city. Those practices that created stability during the siege metamorphosed into new networks and institutions supporting the Commune’s struggle to survive.

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<sup>213</sup> Robert Tombs, “Harbingers or Entrepreneurs? A Workers’ Cooperative during the Paris Commune” *The Historical Journal*, Vol. 27, No. 4 (1984), 976.

<sup>214</sup> John Murray, “Four Days in the Ambulances and Hospitals of Paris Under the Commune” *The British Medical Journal*, Vol. 1, No 542 (1871), 541

Fear and Synesthesia in Lost Revolutions

In the tumult of insurrection, Parisian citizens of all perspectives were doing their best to interpret circumstances and adjust behavior through what Clark describes as the “active self-structuring of the flow of information.”<sup>215</sup> The presentation of bodies and materials became a critical component of communication and interpretation in the revolutionary environment. Early in April, Gustave Cluseret (1823-1900), head of the War Delegation, issued a communique: “I have observed with sorrow that, forgetting our modest origins, the ridiculous mania for braids, embroidery, and ribbons has begun to make its appearance amongst us.”<sup>216</sup> Edmund Goncourt wrote of “studying people’s faces, which are a sort of barometer of events in revolutionary times.”<sup>217</sup> Upon seeing a group of National Guardsmen, “wearing bunches of lilacs,” he felt reassured that the Versaillais had defeated them because of the dejected looks on their faces. Later, Goncourt was discouraged to see Fort Issy “still flying the red flag.”<sup>218</sup> Aspects such as facial features as well as uniforms and revolutionary accoutrements all became critical components to interpreting the condition of the city.

Herein we see the synesthetic aspects of interpreting the environment. Ian Hodder defines synesthesia “as a normal dimension of experience in the world in which

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<sup>215</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 201.

<sup>216</sup> Gustave Cluseret, “Ephemera of the Siege and Commune: Against the Mania for Braids” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 22.

<sup>217</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 185.

<sup>218</sup> *Ibid.*, 185

sensory coherence is sought across domains.”<sup>219</sup> Sensory experience calibrated the individual to the condition of Paris. We can see this clearly in the case of sound. Elie Reclus wrote, “We hear the rolling of drums, and there they are coming from the depths of Saint Antoine quarter, coming down from Belleville and Montmartre, battalion after battalion. They’ve unfurled their red flags, they sing the ‘Marseillaise,’ they shout “To Versailles, to Versailles!”<sup>220</sup> Sonic information became a way of delineating space and the relationships contained within it. Drum roles or cannon fire could identify specific areas and communities, giving an indication of their activity. Contextual knowledge, such as Belleville being a working class and insurrectionary community, could be used to interpret the nature of the activity.

The shaping of information flows occurred in manifold ways, such as the production of revolutionary posters and other communiques. Maxime Vuillaume, editor of Pere Duchene explains that under the Commune, “Le Cri du Peuple, Le Vengeur, and Le Mot d’Ordre reappeared within a few days of each other... Never before was such an affluence of newspapers and journalists seen.”<sup>221</sup> Buildings such as the Ecole de Medicine were inscribed with the words ‘Liberté, Egalité, Fraternité’.<sup>222</sup> We can also see that flows of information could be corrupted and manipulated. Elie Reclus recalled on April 12 “The sole proof that treason is lurking in the shadows is that all the spots

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<sup>219</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 125.

<sup>220</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 98.

<sup>221</sup> Maxime Vuillaume, “Men and Things from the Time of the Commune: Pere Duchene” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 147.

<sup>222</sup> John Murray, “Four Days in the Ambulances and Hospitals of Paris Under the Commune” *The British Medical Journal*, Vol. 1, No 542 (1871), 542.

where the National Guard gathers are regularly visited by cannon fire.”<sup>223</sup> His brother, Élisée Reclus, was captured with his National Guard unit through deception when:

Versailles troops, pretending to come over to the cause of the revolution, were helped to climb the ramparts to repeated cries of ‘We are brothers! Let’s embrace! Vive la Republique!’ We were taken prisoner, and all those recognized by their uniform or their bearing as having once been soldiers were executed near the fence of the neighboring castle.<sup>224</sup>

This event also shows how material garments identified specific populations for execution.

The Commune can be understood through a simple and streamlined naturalistic explanation – a development of unique social form through the intersection of physical patterns, cognitive processes and cultural materials. In significant ways, it brought into being the most coherent expression of radical socialist organization up to that time. Through ecological collapse and reorganization a society emerged that gave rise to new possibilities. The alternatives generated by the Commune presented a form of organizational competition to state power that the French elites were either unwilling or incapable of engaging with beyond the deployment of violence. Paris had diverged too far from the French nation state and the only solution pursued by the National Assembly was extinction and erasure.

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<sup>223</sup> Elie Reclus, “The Commune Day By Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 107.

<sup>224</sup> Élisée Reclus, “Inquiry on the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 71.

## FLAMES

*“They were buried everywhere, in the public squares, under the paving stones, in wells, in trenches dug at the time of the Prussians, in cemeteries, in casements where they were burned. They were brought in wagons to the Champs de Mars, where they were also burned. The ashes weren’t gathered and placed in urns; the winds that carried them away will tell neither their name nor their number.”*

*- Louise Michelle<sup>225</sup>*

Collapse

On the night of the May 23, Louise Michelle was fighting in the cemetery of Montmartre when a cannon shell, “falling across the trees” covered her “with flowering branches.”<sup>226</sup> Spring was in full bloom and Paris was on fire. What became known as the Bloody Week began two days before when the Versaillais entered the city. On the morning of the 22, Ambassador Washburne went to confirm the arrival of the national forces. “I went to at once into the Avenue Josephine and sure enough there was the tricolor waving in triumph on the top of the Arc,” he explained, “immense bodies of troops were advancing along the route of Versailles.”<sup>227</sup> Goncourt recalled the chaos gripping the city. “There was no mistaking the sound of drum and bugle!” he recounted, “I rushed back to the window. The call to arms was sounding all over Paris, and soon, drowning the noise of the drums and the bugles and the shouting of the cries of ‘To Arms!’ came the great, tragic, booming notes of the tocsin being rung in all the

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<sup>225</sup> Louise Michel, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 63.

<sup>226</sup> Louise Michel and Nic Maclellan, ed. *Louise Michel*, (New York: Ocean Press, 2004), 56.

<sup>227</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 194.

churches.”<sup>228</sup> Paris would transform again into a scene of absolute devastation, Goncourt wrote, “the fires burning all over Paris were creating a light like the light of an eclipse.”<sup>229</sup>

The Communard resistance quickly lost cohesion as people retreated behind the barricades to defend their neighborhoods. Historian and Communard Prosper-Oliver Lissagary (1838-1901) noted, “the defeat was hastened by Delescluze’s proclamation of May 22 putting an end to any discipline through the dispersion of the members of the Commune in their neighborhoods... We had hundreds and hundreds of barricades, but they were uncoordinated and impossible to man.”<sup>230</sup> As one communique to the 20th arrondissement makes clear, there were desperate attempts to organize communities into an effective resistance:

There is a grave danger that I’d like to point out to you, and that’s the refusal of the national guard to go forward under the pretext of guarding the barricades of the neighborhoods that are not threatened. Give your assistance to the 19th arrondissement, help repel the enemy... Don’t wait for Belleville to be attacked.<sup>231</sup>

Increasingly the ability for information flows to coordinate the defense of the city broke down as the Versaillais outmaneuvered and overwhelmed the insurgents. Nonetheless, in the words of Louise Michel, “already lost, the Federal hive for eight days halted the most formidable army that the Third Republic deployed.”<sup>232</sup>

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<sup>228</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 187.

<sup>229</sup> *Ibid.*, p. 190

<sup>230</sup> Oliver-Prosper Lissagaray, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 77.

<sup>231</sup> “Ephemera of the Siege and Commune: To the Citizens of the Twentieth Arrondissement” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 35.

<sup>232</sup> Louise Michel, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 64.

The Communard defense relied heavily upon barricades built from any available materials to reconfigure movement through the city. The historian Mark Traugott notes that barricades, “in their purest form are artefacts of the popular imagination, the collective and spontaneous creations of anonymous crowd members who base their actions on knowledge that has been sustained, transmitted, and applied without the benefit of formal organization or institutional hierarchy.”<sup>233</sup> Deeply embedded into the revolutionary tradition, the barricade was not only involved in physical defense but also enmeshed into a romanticized discourse on revolution upon which many members of the Commune staked their faith. The barricades could often be significant feats of engineering; Ambassador Washburne described the grand barricade at the Arc de Triumph as “a monstrous one, twenty feet high and nearly fifty feet wide.”<sup>234</sup> As the Versaillais progressed through Paris men, women and especially the elderly and children threw themselves into reconfiguring the city in a final, desperate attempt to save their communities. Elie Reclus observed children utilizing spatial reasoning skills that evolved over millennia, “boys set themselves in two’s and three’s to loosen paving stone that a kid of five or six then took away, bent under the weight of his burden. Children perched on the walls filled the role of masons and even architects.”<sup>235</sup> Often these reconfigurations occurred amidst the intensity of battle. Reclus wrote of National Guardsmen raising a barricade “one on top of another, three

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<sup>233</sup> Mark Traugott, *The Insurgent Barricade*, (Berkeley: University of California Press, 2010), xi.

<sup>234</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 194.

<sup>235</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 119.

sandstones and not a single one more. Lying flat, the men had organized a chain of paving stones which they raised about their fragile shelter, while comrades exchanged fire with the Versaillais.”<sup>236</sup>

Though uncoordinated, the barricades often created points of formidable resistance. As Washburne recalled, “The biggest sight was at the barricade at the foot of the Boulevard Malesherbes and it lasted two days. It was the key to the insurgent’s position. The sidewalks of that magnificent Boulevard were all covered with horses, baggage, wagons, cannon, caissons &c. The houses all riddled and battered, the trees all torn to pieces and the branches in the street.”<sup>237</sup> Nonetheless, the defenders were overwhelmed by Versailles, with more coordinated flows of information and the infrastructure of the Haussmann plan facilitating rapid movement, allowing the Army to fracture and isolate resistance. The anarchist Jean Grave (1854-1939) observed of the defenders, “They put up enormous barricades which, intended to confront a designated point, were turned by the enemy. Impregnable head on, they left their defenders wide open from behind.”<sup>238</sup> The Versaillais had equally little compunction about reconfiguring the city for their needs, shelling the city extensively and demolishing buildings simply to flank points of resistance. Further, Dr. Murray shows how urban fighting contained a material agency of its own that affected human bodies:

A noticeable fact is the frequency of bullet-wounds of the shoulder, more especially of the right side. This, and also the comparative rarity of bullet-wounds of the lower extremities, very common in the Franco-

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<sup>236</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 119.

<sup>237</sup> Elihu Washburne and Michael Hill ed., *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*, (New York: Simon & Schuster, 2012), 189.

<sup>238</sup> Jean Grave, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 62.

Prussian war, may be accounted for when it is remembered that during the second siege a great part of the fighting has been from the windows of houses and behind barricades, or, more commonly, powerful and well mounted earthworks and batteries.<sup>239</sup>

Beyond just affecting the way in which bodies intersected with the urban environment of Paris the reconfigurations also shaped how information and materials flowed through the city. Elie Reclus recounted organizing with the resistance in the final days:

At every barricade I had to show my pass... the proud colonnade of the Pantheon still topped by the red flag... here and there are thick black vapours, the smoke from the fire... distant noises floating through the vast extent of luminous skies, the song of the Bugle, the call of the drum, the whistling of the fusillade and the staccato of the machine guns. But these noises are weak, so weak that you could almost confuse them with the buzzing of flies.<sup>240</sup>

As the “forces of order” gained control over the city, they severely restricted movement in order to begin processing and reorganizing the city. Communard Alphonse Humbert (1844-1922) recalled, “It was relatively easy to leave during the battle, but afterwards the exits from every neighborhood were guarded by soldiers.”<sup>241</sup> An alternative to Bourgeois order had emerged in Paris. What the Versaillais could not control or negotiate with they resolved to destroy.

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<sup>239</sup> John Murray, “Four Days in the Ambulances and Hospitals of Paris Under the Commune” *The British Medical Journal*, Vol. 1, No 544 (1871), 596.

<sup>240</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 121.

<sup>241</sup> Alphonse Humbert, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 79.

### Executions

A priest identified Eugene Varlin the day after the Commune was crushed. For the past seven days, he had mounted barricade after barricade organizing resistance in the face of relentless assault and mass executions. The thirty-two year old bookbinder did not attempt to flee when he was discovered on the Rue Lafayette:

For an hour, a mortal hour, Varlin was dragged through the streets of Montmartre, his hands tied behind his back, under a shower of blows and insults. His young, thoughtful head, that had never harboured other thoughts than fraternity, slashed open by sabres, was soon but one mass of blood, of mangled flesh, the eye protruding from the socket.<sup>242</sup>

Unable to stand for his execution his captors propped his body against the wall on Rue de Rosiers. Just before the bullets ripped through his body Varlin, cried out, “Vive le Commune!” The executions began with the arrival of the Versaillais and continued for days after the bloody week as the elites re-established their dominance. Anyone remotely suspected of participating in the resistance was lined up and shot, whether man, woman, or child.

With the entrance of the Versaillais the city had a dearth of materials that needed to be reorganized and processed, including human beings and their remains. Tens of thousands of suspected insurgents were captured, organized into groups based on role such as national guardsmen and mutineers, or by gender. Edmund Goncourt witnessed the processing of bodies by the army, “four hundred and seven including sixty-six women... The men had been split up into lines of seven or eight and tied to each other

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<sup>242</sup> Prosper-Olivier Lissagaray, *History of the Paris Commune of 1871*, (London: Verso, 2012), 308

with string that cut into their wrists.”<sup>243</sup> Maxime Vuillaume recalled how agents in tricolor armbands oversaw the executions while “squeezed against a wall and surrounded by soldiers was a mass of men... Every few minutes a platoon of soldiers arrived and took away the first six. We then heard explosions.”<sup>244</sup> Again, information was encoded into materials that helped facilitate behavior. Goncourt described “soldiers, army deserters, who had their tunics on inside out, with their grey cloth pockets hanging by their sides, and who seemed to be already half stripped for the firing squad.”<sup>245</sup> If the Communards were not summarily executed, they were marched to different areas of the city to deal with later. Dr. Murray recalls how the Communards were taken to the Palais de l’Industrie and placed in “stalls for the horses-the names of which, as “Kiss me”, “Nancy” , “Belle a peur” , etc., still remain-about two hundred and fifty Communists [sic] lay wounded.”<sup>246</sup>

The executions left a considerable number of bodies to be “metabolized” for the city to resume functioning. In order to break down the remains various materials were employed to dispose of bones and flesh. Dr. Murrays corresponded, “Hundreds of those shot in cold blood had been placed in heaps and covered with earth. Chloride of lime, and also tar, had been freely used as disinfectants.”<sup>247</sup> As Louise Michell put it, “Paris was an immense abattoir where, after eight days of slaughter, the hordes of flies over

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<sup>243</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 191

<sup>244</sup> Maxime Vuillaume, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 70.

<sup>245</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 192.

<sup>246</sup> John Murray, “Four Days in the Ambulances and Hospitals of Paris Under the Commune” *The British Medical Journal*, Vol. 1, No 545 (1871), 622

<sup>247</sup> *Ibid.*, 622

the mass graves put an end to the killings for they feared plague.”<sup>248</sup> However, Elie

Reclus paints the most vivid image of the devastation:

The banks of the river are scattered with corpses, the streets as well. In certain courtyards the dead bodies are piled up. Carcasses are taken away in cartloads to be buried in half deep ditches that are covered with quicklime. Elsewhere they are sprinkled with petroleum and burned. We saw a convoy of ten to twelve buses full of human debris. A friend who brought us information shows us his boot heels, soaked with blood. From both sides of the Seine a red thread flows along the shore.<sup>249</sup>

In the days that followed the destruction of the Commune, those that held power reconfigured the city’s environments to assert their dominance. Goncourt recalled, “there are tricolors in every window and on every carriage. The cellar ventilators of all the houses have been blocked up again. Across the paving-stones which are being replaced, the people of Paris, dressed in their travelling-clothes, are swarming in to take possession of their [sic] city once more.”<sup>250</sup> The French elite crushed and burned the Commune with brute force, they shattered its systems of organization; the bodies, moreover, infected as they had been with ideas that could not be tolerated, rotted in mass graves. On the final day of the Commune, May 28, Edmund Goncourt made his way to the Hotel de Ville. The building was a smoldering ruin after the fighting. The statues and clock had been shattered, the stones of the facade scorched. Amid the twisted and broken building, the nexus of Parisian revolutionary memory,

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<sup>248</sup> Louise Michel, “Inquiry into the Commune” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 63

<sup>249</sup> Elie Reclus, “The Commune Day by Day” in *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*, Mitchell Abidor, ed (Pacifica: Erythros Press, 2010), 122.

<sup>250</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 194.

stood an unscathed marble plaque inscribed with the words, “Liberté, Égalité, Fraternité.”<sup>251</sup>

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<sup>251</sup> Edmund De Goncourt, Jules De Goncourt, and Robert Baldick, trans. *Pages From the Goncourt Journals*, (New York: New York Review Books, 1962), 193.

## CONCLUSION: SOOT FROM THE FLAMES

In 1857, fourteen years before the Commune, human beings first recorded and saw sound as image. During the height of Haussmannisation the inventor Édouard-Léon Scott de Martinville created the phonautograph in a small laboratory in Paris.<sup>252</sup> He coated a ream of paper in soot by using smoke from an oil lamp. Parchment formed a conic horn that concentrated sound waves and transferred their vibrations to the tip of a small brush. A hand crank turned the paper and the stylus swept away the soot, recording sound waves. The story goes that he pulled a young girl off the streets of Paris, presumably a little girl that sang a working class lullaby “Au Claire de la Lune” into the contraption. The waves from her throat shook the brush and, for the first time, humans saw sound. As the photograph did with light, the phonautograph did with sound: it translated human experience into a new medium. What happened in those brief moments of time? Was Scott pleased with the first recording? Did the girl care to see her voice? Did Scott explain what was happening? Some researches deny the story of the girl entirely, and claim it is Martinville singing. These things were not documented in the soot, only the sound waves.

Let us take the story of the little girl as true, for it is more poetic and we do not know otherwise. Her mother had probably sung the lullaby to her as a baby, a human becoming aware of its time and place to the sound of “Au Claire de la Lune.” As she grew, the song would have become increasingly entangled within her neural pathways, embedding into her memory as she came to understand sounds and words. She likely

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<sup>252</sup>Jody Rosen. "Researchers Play Tune Recorded Before Edison." The New York Times, March 27, 2008. Accessed August 16, 2014.  
[http://www.nytimes.com/2008/03/27/arts/27soun.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2008/03/27/arts/27soun.html?pagewanted=all&_r=0).

sang it to herself as she played or washed clothes on the streets of Paris. When Martinville brought her into his laboratory and asked her to sing it was probably the first thing that came to her mind. Her conscious experience, and her life, passed before the machine for the length of a single song and her voice, no doubt sweet and youthful, was etched in soot like the wake of a boat. There was no method of playback, the phonautograph could hear, it could see sound, but it could not speak. Therefore, the reels sat in the archives until 2008 when digital technology allowed the little girl, or perhaps someone else, to sing for the first time in 151 years.

In essence, the vibrations produced from the throat coagulated on the sooty paper into a hardened form. Sound is energy, a wave that requires a medium in order to take form. In a vacuum, no sound is produced; similarly, without the material apparatus of something like the voice box or phonautograph, there is no means of storing or putting that potential energy to work. Energy and matter are interdependent, dialectically entangled patterns. Energy, defined as the capacity to do work, functions akin to the armature of a sculpture, binding together a medium into new configurations.<sup>253</sup> The key difference is that, unlike the static armature of a sculpture, energy is flow, the movement of entropy. What it binds together are relationships, the connectivity and interaction among elements.<sup>254</sup> In turn, the material environment enables form to emerge by providing structure that shapes flows of energy. The adaptive interactions of flow and form are what we term information. This responsiveness between movement and structure is what allows self-shaping patterns to emerge. The phonautograph provided the environmental conditions in which flows of sound

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<sup>253</sup> Edmund Russell, James Allison, Thomas Finger, and John K. Brown, "The Nature of Power: Synthesizing the History of Technology and Environmental History," *Technology and Culture*, 52, no. 2 (2011), 249

<sup>254</sup> *Ibid.*, 252

transformed into a physical object, allowing “Au Claire de la Lune” to become waves of soot.

For the sake of simplicity and unity, let us think of humans and the environment in similar terms. Human beings emerged through the evolutionary feedback produced in ecological settings. As the neuroscientist Ian McGilchrist observes, “the structure of the brain reflects its history: as an evolving dynamic system, in which one part evolves out of another”<sup>255</sup> This feedback resulted in a highly social and dexterous organism capable of laterally sharing vast amounts of information among its species. Andy Clark describes the human body as:

The primary tool enabling the intelligent use of environmental structure. It acts as the mobile bridge that allows us to exploit the external world in ways that simplify and transform internal problem solving... the body’s role in such cases is that of a bridging instrument enabling the repeated emergence of new kinds of distributed information-processing organization.<sup>256</sup>

In essence, the logic of selection and adaptation was localized within individual humans, allowing for highly adaptive behavior both individually and collectively. Ian Hodder describes the selective benefit of such “behavioral plasticity” in that it “allows more speedy adaptation of organisms to environmental perturbations.”<sup>257</sup> This capacity has led to unparalleled growth in organizational complexity throughout the course of human existence. As Daniel Smail notes, “cultural evolution exceeds the pace of human biological evolution... because the generational turnover is more rapid.”<sup>258</sup> More

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<sup>255</sup> Iain McGilchrist, *The Master and His Emissary: The Divided Brain and the Making of the Western World*, (New Haven: Yale University Press, 2009), 8.

<sup>256</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 207.

<sup>257</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 141.

<sup>258</sup> Daniel Lord Smail, *On Deep History and the Brain*, (Berkeley: University of California Press), 101

specifically, Andy Clark explains “the cultural transmission of knowledge and practices resulting from individual lifetime learning, when combined with the physical persistence of artefacts, yields yet another source of selection impacting feedback.”<sup>259</sup> In other words, the products of human activity become ecological entities shaping flows of energy, matter, and information in the environment. It should not be forgotten that human cognition emerged in the wild, its fundamental capacities evolved through highly embedded and embodied interactions within “natural” environments. Human survival has been predicated on the ability to process and communicate information for both individual and collective adaptation. The qualities and behaviors of other forces, organisms, and non-human agents helps to “ground” the conceptual environment by providing a medium for human cognition. Cognitive ecologies develop through densely coupled feedback with the environment, giving structure to the possibilities of human experience analogous to the way the phonograph gave a visual structure to sound waves.

A key feature of human cognitive ecologies is that they emerge as social ecologies. Language plays a critical function in this but the material products of culture help bind together socio-cognitive ecologies in both time and space. Ian Hodder expounds, “material things do more than facilitate. They tie the webs of interaction with dependence.”<sup>260</sup> This interplay between material structure and flows of energy and information enables a multitude of cognitive agents to develop coherence in their behavior. Materials shape human engagement by encouraging and constraining the possible forms of interaction available. Material signs such as red flags did not merely

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<sup>259</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 62

<sup>260</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 111.

symbolize the Commune; they brought it into being and elicited a host of adaptive responses. Cultural materials circulating in socio-cognitive ecologies function to enmesh human cognitive abilities and social relationships into the physical environment. The addition of language and cultural artefacts all react back upon their environments to alter the adaptive landscapes in which humans are operating. Ian Hodder clarifies further, “cultural traits can be considered as part of the phenotype - extensions of the bodily interaction with the environment.”<sup>261</sup> As humans alter the ways they interact with their environments, they alter the structure of their environments, creating co-evolutionary feedback. Malafouris expands upon this concept:

Things, as dynamic perturbatory mediational means, drastically change and reconfigure the relationships between humans and those between humans and their environments. More simply, they reconfigure our cognitive ecologies or assemblies... an immediate implication of that is a change in evolutionary dynamics and selective pressures. The presence of things means that people no longer react or passively adapt to their environment; instead they actively engage and interact with it. That is, things become agents of change and culturally orchestrated interventions, generating their own unusual evolutionary dynamics.<sup>262</sup>

By learning new forms of material engagement, human beings alter the configurations of energy, matter and information in their environments and reshape their cognitive ecologies. Andy Clark argues that the “capacity to creatively distribute labor between biology and the designed environment is the very signature of our species.”<sup>263</sup> Indeed, it is legitimate to understand the impact of humans and their societies on the environment in terms of “cognitive footprints.”

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<sup>261</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 140.

<sup>262</sup> Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 246.

<sup>263</sup> Andy Clark quoted in Lambros Malafouris, *How Things Shape the Mind: A Theory of Material Engagement*, (Cambridge: The MIT Press, 2013), 161.

Cities are one of the clearest examples of such cognitive footprints. These nexuses of cognitive engagement are entangled in the evolutionary history and ecological functions that support their emergence. As far as the biological capacities of humans are concerned, the developing brain makes no differentiation between the city and the wild. For humans born into urban life, cities are simply the environmental context in which cognition emerges and adapts. However, cities do provide highly distinctive cognitive environments in which human development can unfold. In the context of an urban setting, the individual learns to map and engage with an adaptive landscape composed of dense interactions among other humans and their cultural products. Much as the Inuit learn to interpret and navigate ice cracks and shades of snow color, the urban human adapts to socio-cognitive patterns embedded in the form of the city. Urban ecologies are environments that circulate vast amounts of semiotic materials such as rifles, red flags, churches, barricades, songs, and ideologies. Just as other human societies might “read” ice or track game, patterns in the urban environment feedback into human cognition to shape behavior.

In this sense, we can consider the city as an apparatus akin to the phonograph, an environmental structure and medium through which human energy is transformed. As De Landa explains, “cities arise from the flow of matter-energy, but once a town’s mineral infrastructure has emerged, it reacts to those flows, creating new sets of constraints that either intensifies or inhibits them.”<sup>264</sup> The lives of stonemasons and bookbinders, washer girls and inventors are translated into the material formation of the city. Once materialized, these transformations of human energy react back upon their

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<sup>264</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 28.

environment to reshape interactions and relationships. De Landa notes, “once certain cultural materials have accumulated, they may harden into institutional values, which in turn act as selection pressures for further cultural accumulations.”<sup>265</sup>

So we return to Marx’s comparison of the bee and the architect. The creation of beehives is termed “niche construction, the activities, choices, and metabolic processes of organisms, through which they define, choose, modify, and partly create their own niches.”<sup>266</sup> Niche construction is a feedback process between organism and environment in which the two mutually shape each other. Andy Clark expands further that “rampant niche construction yields a rapid succession of selective environments and hence favors the biological evolution of phenotypic plasticity.”<sup>267</sup> In this sense, the emergence of society and culture can be seen as cognitive niche construction. No human being is alive in Paris that participated in Haussmannisation or the Commune, yet their lives and actions are embedded into the material form of the city, songs can still sing after a century and a half. Those past lives, like sediment, structure the environmental context of all contemporary Parisians.

As a case study in analyzing the cognitive footprint of past societies the brief yet remarkable events of the Paris Commune, bring into stark relief the entanglement of environment, social organization and cognition. In part, this is because Paris from September of 1870 to May of 1871 provides a relatively closed, clearly delineated system. During this period, human cognitive abilities, in the context of the broader

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<sup>265</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 143.

<sup>266</sup> Laland et al quoted in Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 149.

<sup>267</sup> Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2011), 67.

transformations and cultural adaptations of the nineteenth century, intersected with a highly stressed environment to produce a unique social form. “Reproductive isolation” Manuel de Landa explains “acts as a ratchet mechanism’ that conserves the accumulated adaptations and makes impossible for a given population to ‘de-evolve.’”<sup>268</sup> Parisian cultural adaptations began to diverge from France as the Prussian siege fractured the “armature” of energy, matter and information supporting Second Empire Paris. Here it is possible to glimpse the complex ways in which societies are embedded in evolutionary and ecological dynamics and how such dynamics shape human possibility. Furthermore, there seems to be a strong correlation between systemic collapse, selection, and the growth of complexity. Indeed, such breakdowns seem to be a major driver of complexity by selecting for more effective, efficient forms of organization that form a baseline for future evolution.

With the collapse in resources necessary to sustain human bodies, many Parisians accessed the cognitive niche provided by revolutionary and socialist culture in the nineteenth century. This allowed radicalized Parisians to explore alternative organizational forms, helping sustain communities through various hardships. These alternative social forms developed from a manipulable structure of cognitive artefacts that enabled Parisians to adapt to their environments. Things such as National Guard Cannons bound Parisians into new social relationships and provided the scaffolding with which to understand such relationships. When the National Assembly attempted to take the cannons, they challenged a densely interconnected and resilient form of organization that was operating as a functional alternative. The social conflict over these artefacts reconfigured Parisian power, catalyzing the emergence of a historically

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<sup>268</sup> Manuel De Landa, *A Thousand Years of Nonlinear History*, (New York: Swerve Editions, 2000), 61.

significant and distinctive cognitive ecology. “All power derives from energy - it is energy put to work” notes Edmund Russell and a number of colleagues, “ultimately, this power must originate in nature, especially the sun’s solar energy.... People gain power by enlisting people, nonhuman nature, ideas, and technology into networks supporting their goals, and energy courses through these networks.”<sup>269</sup> Marginalized Parisian, by organizing new ways of sustaining themselves through the siege, had tapped new sources of energy within their communities, allowing them to express new power and collective agency. Ian Hodder clarifies “power is the differential flow of matter, energy and information through entanglements.”<sup>270</sup> The radicalized Parisians comprising the Commune were in a sense the successional ecology, recolonizing Paris after a disturbance, reconfiguring the environment. Ultimately, these alternative social forms were exterminated to the best of the Versailles’ ability. However, by coalescing so much socialist engagement, the Commune became its own cognitive artefact for future revolutionaries to structure their thinking around. The Commune ignited from the materials of the city like a wildfire, radically altering the environment before its flame was extinguished.

The human capacity for adaptation and creativity is astonishing and profound. It is easy to understand why the nineteenth century was such a startling experience for those who lived in it. With industrialization, human abilities for material engagement and collective agency began to expand dramatically, accelerating cultural adaptation as humans learned to interact in new ecological relationships. As an organism humans

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<sup>269</sup> Edmund Russell, James Allison, Thomas Finger, and John K. Brown, “The Nature of Power: Synthesizing the History of Technology and Environmental History,” *Technology and Culture*, 52, no. 2 (2011), 259

<sup>270</sup> Ian Hodder, *Entangled: An Archaeology of the relationship between Humans and Things*, (Oxford: Wiley-Blackwell, 2012), 214.

radically reshape their environments and construct their own cognitive niches. The spectacle of human history is predicated upon physical and biological patterns, however human agency is not “reduced” to these patterns but made possible by them. Agency is distributed and mediated through the material environment. In the case of the Commune, marginalized and dispossessed peoples were capable of reorganizing themselves and their environments into a resilient and meaningful challenge to power. This was not because Marx’s architect imagined the structure before inscribing it upon the environment, but because communities actively learned how to create a different world by reshaping their environments together. History is alive with the astonishing capacities of human beings, but we must also learn that the Earth moves to far older rhythms.

## Works Cited

## Primary Sources

Abidor, Mitchell, ed. *Communards: The Story of The Paris Commune of 1871 As Told by Those Who Fought for It*. Pacifica: Erythros Press, 2010.

——— Da Costa, Gaston, "The Commune Lived" 1903.

——— "Ephemera of the Siege and Commune" 1871.

——— "Inquiry on the Commune" *La Revue Blanche* 1897.

——— Malon, Benoit. "The Third defeat of the French Working Class" 1871.

——— Marancourt, Leon Massenet de., Henri Bellinger, and Maxime Vuillaume. "Men and Things from the Times of the Commune." 1871.

——— Reculs, Elie. "The Paris Commune Day by Day." 1908.

——— "Sessions of the International in Paris During the Commune"  
Minutes from Session of January 5, 1871.  
Minutes from Session of January 12, 1871.  
Minutes from Session of the Federal Council of January 19, 1871.  
Minutes from Session of January 26, 1871.

Blanqui, Louise Auguste, "For the Red Flag" *In Selected Works of Louise Auguste Blanqui*, San Bernidino: EatDogEat Publishing, 2011.

Boismont, Brierre De. "A Lunatic Asylum During the Siege of Paris," *The British Medical Journal*, 1, no. 531, 1871.

de Cleyre, Voltairine, and Andrew Zonneveld ed. In "The Pairs Commune" *The Commune: Paris 1871*. Georgia: On Our Own Authority! Publishing, 2013.

De Goncourt, Edmund., Jules De Goncourt., and Robert Baldick, trans. *Pages from the Goncourt Journals*. New York: New York Review Books, 1962.

de Molinari, Gustave, *Les clubs rouges pendant le siege de Paris*. Paris: Editions du Seuil, 1871.

Kropotkin, Peter, and Andrew Zonneveld ed. "The Commune of Paris" In *The Commune: Paris 1871*. Georgia: On Our Own Authority! Publishing, 2013.

Lissagaray, Prosper-Olivier. *History of the Paris Commune of 1871*. London: Verso, 2012.

- Marx, Karl and Ben Fowkes, trans. *Capital. Vol. I*. London: Penguin Books, 1990.
- Marx, Karl. "The Civil War in France" *Writings on the Paris Commune*. St. Petersburg: Red and Black Publishers, 2013.
- Marx, Karl and Frederick Engels. *The Communist Manifesto*. New York: International Publishers, 2003.
- Marx, Karl., and Frederick Engels. *The Eighteenth Brumaire of Louis Bonaparte*. New York: International Publishers, 2004.
- Marx, Karl., and Frederick Engels. *Marx and Engels Collected Work Volume 38*. London: Lawrence and Wishart, 1975.
- Michel, Louise, and Nic Maclellan, ed. *Louise Michel*. New York: Ocean Press, 2004.
- Murray, John. "Four Days in the Ambulances and Hospitals of Paris Under the Commune" *The British Medical Journal*, Vol. 1, No 542 (1871), 541
- "Four Days in the Ambulances and Hospitals of Paris Under the Commune" *The British Medical Journal*, Vol. 1, No 544 (1871), 596
- "Four Days in the Ambulances and Hospitals of Paris Under the Commune" *The British Medical Journal*, Vol. 1, No 545 (1871), 622
- "Notes of the War: Adventures of an Ambulance-Surgeon in the Sorties from Paris" *The British Medical Journal*, 2, no. 520, 1870.
- Proudhon, Pierre-Joseph., and Ian McKay, ed. *Property is Theft: A Pierre-Joseph Proudhon Anthology*. Oakland: AK Press, 2011.
- Putnam, Mary, "Paris in 1870: Letters of Mary Corinna Putnam" *The American Historical Review*, 22, no. 4, 1917.
- Schulkind, Eugene, ed., *The Paris Commune of 1871: The View from the Left*. New York: Grove Press, 1974.
- Avrial, Augustin "Augustin Avrial Declaration of Principles for Election as Commander of a National Guard Battalion" November, 1870.
- "Special Correspondence: Paris," *The British Medical Journal*, 2, no. 512, 1870.

Varlin, Eugene., and Paule Lejeune, ed. *Eugene Varlin: Pratique militante & ecrits d'un ouvrier communard*. Paris: L'Harmattan, 1977.

Washburne, Elihu., and Michael Hill ed. *Elihu Washburne: The Diary and Letters of America's Minister to France During the Siege and Commune of Paris*. New York: Simon & Schuster, 2012.

### Secondary Sources

Bestor, Arthur E. "The Evolution of the Socialist Vocabulary," *Journal of the History of Ideas* 9, no 3. (1948).

Christian, David. *Maps of Time: An Introduction to Big History*. Berkley: University of California Press, 2004.

Gluckstein, Donny. *The Paris Commune: A Revolution in Democracy*. Chicago: Haymarket Press, 2011.

Gulickson, Gay L., *Unruly Women of Paris: Images of the Commune*. Ithaca: Cornell University Press, 1996.

Gould, Roger V. *Insurgent Identities: Class, Community, and Protest in Paris from 1848 to the Commune*. Chicago: University of Chicago Press, 1995.

Harison, Casey. "The Rise and Decline of a Revolutionary Space: Paris' Place de Greve and the Stonemasons of Creuse, 1750-1900", *Journal of Social History*, Vol 34, No. 2 (2000).

Harvey, David. *Paris: Capital of Modernity*. London: Routledge, 2005.

Horne, Alistair. *The Fall of Paris: The Siege and the Commune 1870-71*. London: Penguin Books Ltd, 2007.

Marshall, Peter. *Demanding the Impossible: A History of Anarchism*. Oakland: P.M. Press, 2010

Johnson, Martin Phillip. *The Paradise of Association: Political Culture and Popular Organization in the Paris Commune of 1871*. Ann Arbor: The University of Michigan Press, 1996.

McNeill, J.R., and William H. McNeill. *The Human Web: A Bird's-Eye View of World History*. New York: W. W. Norton & Company, 2003.

- Rosen, Jody. "Researchers Play Tune Recorded Before Edison." *The New York Times*. March 27, 2008.
- Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press, 1998.
- Shafer, David A. *The Paris Commune: French Politics, Culture, and Society at the Crossroads of the Revolutionary Tradition and Revolutionary Socialism*. New York: Palgrave Macmillan, 2005.
- Tombs, Robert. "Harbingers or Entrepreneurs? A Workers' Cooperative during the Paris Commune" *The Historical Journal*, Vol. 27, No. 4 (1984).
- Traugott, Mark. *The Insurgent Barricade*. Berkely: University of California Press, 2010.

### Theory

- Atkins, Peter. *The Laws of Thermodynamics: A Very Short Introduction*. Oxford: Oxford University Press, 2010.
- Clark, Andy. *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*. Oxford: Oxford University Press, 2011.
- Clark, Andy. "Where Brain, Body and World Collide" in *Material Agency: Towards a Non-Anthropocentric Approach*. eds. Carl Knappet, and Lambros Malfouris. New York: Springer, 2008.
- De Landa, Manuel. *A Thousand Years of Nonlinear History*. Swerve Editions. New York: Zone Books, 1997.
- Gunderson, Lance H., and C.S. Holling, eds. *Panarchy: Understanding Transformations in Human and Natural Systems*. London: Island Press, 2002.
- Hodder, Ian. *Entangled: An Archaeology of the relationship between Humans and Things*. Oxford: Wiley-Blackwell, 2012.
- Hutchins, Edwin. "Enculturating the Supersized Mind" *Philosophical Studies* 152 no. 3 (2011).
- Hutchins, Edwin. "Imagining the Cognitive Life of Things" in *The Cognitive Life of Things: Recasting the Boundaries of the Mind*. Cambridge: McDonald Institute Monographs, 2010.

- Hutchins, Edwin. "Cognitive Ecology," *Topics in Cognitive Science* 2 (2010).
- Ingold, Tim. "Beyond Biology and Culture. The Meaning of Evolution in a Relational World," *Social Anthropology*. 12, no. 2 (2004).
- Johnson, Neill. *Simply Complexity: A Clear Guide to Complexity Theory*. Oxford: Oneworld, 2009.
- Johnson, Steven. *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*. New York: Scribner, 2001.
- Levin, Simon. *Fragile Dominion: Complexity and the Commons*. Cambridge: Helix Books, 1999.
- Malafouris, Lambros. *How Things Shape the Mind: A Theory of Material Engagement*. Cambridge: The MIT Press, 2013.
- McGilchrist, Ian. *The Master and his Emissary: The Divided Brain and the Making of the Western World*. New Haven: Yale University Press, 2009.
- Shryock, Andrew, and Daniel Lord Smail. *Deep History: The Architecture of Past and Present*. Berkley: University of California Press, 2011.
- Singer, Peter. *Marx: A Very Short Introduction*. Oxford: Oxford University Press, 2000.
- Smail, Daniel Lord. *On Deep History and the Brain*. Berkley: University of California Press, 2008.
- Nash, Linda. "The Nature of Agency or the Agency of Nature?" *Environmental History*. 10. no. 1 (2005).
- Russell, Edmund, James Allison, Thomas Finger, and John K. Brown. "The Nature of Power: Synthesizing the History of Technology and Environmental History." *Technology and Culture*. 52. no. 2 (2011).
- Schneider, Eric D., and Dorian Sagan. *Into the Cool: Energy Flow, Thermodynamics, and life*. Chicago: University of Chicago Press, 2005.
- Williams, Raymond. "Ideas of nature," *Problems in Materialism and Culture: Selected Essays*. London: Verso, 1980.