

**UC Santa Barbara**  
**Journal of Transnational American Studies**

**Title**

Insects, War, Plastic Life

**Permalink**

<https://escholarship.org/uc/item/3v34p345>

**Journal**

Journal of Transnational American Studies, 13(2)

**Author**

Mawani, Renisa

**Publication Date**

2022

**DOI**

10.5070/T813259574

**Copyright Information**

Copyright 2022 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Renisa Mawani, "Insects, War, Plastic Life," in *Plastic Materialities: Politics, Legality, and Metamorphosis in the Work of Catherine Malabou*, ed. Brenna Bhandar and Jonathan Goldberg-Hiller, 159–87. Copyright 2015, Duke University Press. All rights reserved. Reprinted by permission of the copyright holder and the publisher. [www.dukeupress.edu](http://www.dukeupress.edu)

## Plastic Materialities

POLITICS, LEGALITY, AND METAMORPHOSIS

IN THE WORK OF CATHERINE MALABOU

BRENNA BHANDAR AND

JONATHAN GOLDBERG-HILLER, EDITORS

© 2015 Duke University Press

All rights reserved

Printed in the United States of

America on acid-free paper ∞

Typeset in Chaparral by Westchester

Publishing Services

Library of Congress Cataloging-in-Publication Data

Plastic materialities : politics, legality, and  
metamorphosis in the work of Catherine  
Malabou / Brenna Bhandar and Jonathan  
Goldberg-Hiller, eds.

pages cm

Includes bibliographical references and index.

ISBN 978-0-8223-5845-9 (hardcover : alk. paper)

ISBN 978-0-8223-5857-2 (pbk. : alk. paper)

1. Malabou, Catherine. 2. Philosophy of mind.

3. Adaptability (Psychology) 4. Brain—

Philosophy. I. Bhandar, Brenna

II. Goldberg-Hiller, Jonathan

BD418.3.P53 2015

194—dc23

2014036269

ISBN 978-0-8223-7573-9 (e-book)

Cover art: Greg Dunn, *Two Pyramidals*, 2010

(detail). Enamel on composition gold; 18" x 24".

Courtesy of the artist.

Acknowledgments, vii

Introduction. Staging Encounters, 1

*Brenna Bhandar and Jonathan Goldberg-Hiller*

- 1 ■ Will Sovereignty Ever Be Deconstructed?, 35  
*Catherine Malabou*
- 2 ■ Whither Materialism? Althusser/Darwin, 47  
*Catherine Malabou*
- 3 ■ From the Overman to the Posthuman:  
How Many Ends?, 61  
*Catherine Malabou*
- 4 ■ Autoplasticity, 73  
*Alain Pottage*
- 5 ■ Plasticity, Capital, and the Dialectic, 91  
*Alberto Toscano*
- 6 ■ Plasticity and the Cerebral Unconscious: New Wounds,  
New Violences, New Politics, 111  
*Catherine Kellogg*
- 7 ■ "Go Wonder": Plasticity, Dissemination,  
and (the Mirage of) Revolution, 133  
*Silvana Carotenuto*
- 8 ■ Insects, War, Plastic Life, 159  
*Renisa Mawani*

## Insects, War, Plastic Life

*Renisa Mawani*

■ In a brief essay appearing near the end of his widely read and acclaimed *Mythologies*, Roland Barthes ruminates on the mass production and quotidian uses of plastics in modern life.<sup>1</sup> Emphasizing their perilous and undesirable qualities—most recently echoed in contemporary concerns over plastics and their hazardous effects on human/environmental health in the global north—Barthes differentiates this engineered, synthetic, and artificial material from the sublime authenticity of nature. “In the hierarchy of the major poetic substances,” he writes, plastic “figures as a disgraced material, lost between the effusiveness of rubber and the flat hardness of metal; it embodies none of the genuine produce of the mineral world: foam, fibres, strata.” Rather, plastic “is a ‘shaped’ substance: whatever its final state, plastic keeps a flocculent appearance, something opaque, creamy and curdled, something powerless ever to achieve the triumphant smoothness of Nature.”<sup>2</sup> Here, Barthes is clear that plastic, despite its malleability, can never achieve the exalted qualities or dynamic surfaces of the natural world. Yet its mutability, he cautions, its ability to assume multiple forms, opens the possibility that plastic might eventually surpass and even *replace* nature. The “whole world *can* be plasticized, and even *life itself* since, we are told, they are beginning to make plastic aortas.”<sup>3</sup> The mid-twentieth century onwards, Barthes predicted with palpable disappointment, was to be an era of plastic.

More recently, Catherine Malabou has also described the contemporary moment in terms of plastic.<sup>4</sup> Echoing Barthes, affirming his foresight, while at the same time diverting from his dystopic views, Malabou draws attention to the multiplicity of plastics, their everyday circulation, and expanding consumption: “plastic wood, plastic money, plastic paint,

and the dangerous plastic material of putty-like consistency that can be shaped by hand.”<sup>5</sup> In sharp contrast to Barthes, however, she emphasizes the malleability and transformability of plastic—not as an artificial substance—but as “a new mode of being of form” and a new way of conceptualizing “this mode of being itself.” For Malabou, plasticity is not a material or an object but rather a “*new scheme*,” one that opens the potential for resistance at a historical juncture increasingly marked by closure.<sup>6</sup> Plastic and plasticity, in her account, do not signal the demise or end of nature, as they did for Barthes, but are situated *between* biology and history, *between* determination and freedom. “The very significance of plasticity itself appears to be plastic,” Malabou contends, “opposed to form, describing the destruction and the very annihilation of all form—as suggested by the term ‘plastic’ explosive for a bomb.”<sup>7</sup> Its mutability, which concerned Barthes, is for Malabou what weights plasticity with possibility: “For is not plastic the substitutable material par excellence? Can it not take the place of everything, can it not deconstruct every idea of authenticity, is it not always engaged in the process of its own disappearance? Is it not always beyond its very own form because it can change?”<sup>8</sup> In Malabou’s formulation, plasticity’s ability to continually re-create content and rupture form is what lends itself to political transformation amidst the expanding horizons of global capitalism where opportunities for resistance seem limited, if not impossible.

In this chapter, I read Malabou’s “new scheme” of plasticity and especially her efforts to deconstruct the biology-history divide as a wider imperative to revisit the human/nonhuman distinctions that have repeatedly been unraveled and yet continue to persist with tenacity in critical theory.<sup>9</sup> In the voluminous literature on biopolitics, for example, inspired and developed from Foucault’s writings and lectures, discussions of “life itself” continue to be rooted in anthropocentric understandings that privilege the human over the animal and life over death. Despite ongoing scientific pursuits aimed at manipulating and transforming life-forms and notwithstanding critical approaches directed at assessing and analyzing such developments, discussions of life in debates over biopolitics continue to center on anthropocentric accounts of “man-as-species.”<sup>10</sup> Whereas Malabou draws attention to human stem cells and to neuroplasticity emphasizing the mutuality of biology, history, and politics, my own interest centers on plasticity as a life and death force that runs through, between, and across human and nonhuman divides.<sup>11</sup>

Specifically, I conceptualize plasticity as a set of deep entanglements of life-forms and forms of life as evidenced in the growing significance of insects globally. Approaching insects as plastic life, I consider how their ability to mutate and reinvent new forms has been absorbed and integrated into a global biopolitical regime integral to the futurity of human and nonhuman life and death. While these entanglements exceed and unsettle the human as a privileged ontology, the plasticity of insects is always already asymmetrically organized across global terrains, nurturing life-forms and ways of life in the global north while producing regimes of death in other regions, not limited to or contained by the global south.<sup>12</sup> By reading plasticity through biopolitical concerns and through insect life, I situate its potentiality ambivalently *between* the dystopic views offered by Barthes and the emancipatory visions proposed by Malabou. Placed in the contemporary conditions of global war, the ability of plastic to form, transform, and explode its own plasticity, I suggest, cannot be lauded as a foreseeable opening to political transformation. The global contemporary is not only a moment of closure but one produced through uneven circuits and circulations of power. Thus, the “ontological combustion” of plasticity harbors the potential to explode its own possibility, reinforcing existing geopolitical divides while also producing new ones that ultimately constrain and even eliminate itineraries for emancipatory politics.<sup>13</sup>

In what follows, I develop this argument in three parts. Beginning with entomology, I consider the plasticity of insects and their ability to change, mutate, and explode form. Insects have figured prominently in philosophical and literary writings. Most significantly, anticolonial, postcolonial, and critical race theorists have drawn attention to the ways in which the native and colonized have been dehumanized as insects, justifying regimes of racial-colonial violence and ultimately death.<sup>14</sup> Informed by and building upon these metaphorical discussions of animality, part two considers the *materiality* of insect forms and asks how the plasticity of insects has been harnessed and mobilized by the US military as emergent and embedded technologies of surveillance and war.<sup>15</sup> As both killable species and model prototypes—expendable species well suited to kill prospective terrorists and enemies presumed to be threatening Western forms of life—insects have become a critical dispositif in the US-led war on terror. Their incorporation into tactics of war point to the expansion of a biopolitical regime that exceeds the human, highlights the interpenetration of human life and insect death



and thus demands a fundamental rethinking of life itself. In the final section, I return to consider the political potentiality that Malabou ascribes to plasticity. Drawing from the work of Henri Bergson, I suggest that the political and ethical possibilities of plasticity do indeed lie in its “ontological combustion,” a combustion that must explode the species differentiation which continues to persist, most noticeably in biopolitical conceptualizations of life and death. Plasticity, as I conceptualize it, is not merely a synthetic material, as Barthes claims. Nor is it situated between biology and history, as it is for Malabou. Plastic and plasticity, I argue, are vital impulses *animating*, *interrelating*, and *exploding* the uneven terrains of human and nonhuman life and death, thus rendering its political potentiality all the more ambiguous.<sup>16</sup>

#### PLASTIC INSECTS

Insects are not commonly regarded as companion species.<sup>17</sup> Unlike dogs, cats, and other domestic and nondomestic animals, they are small in size, deemed insignificant in effect, while defying the bounds of human recognition. Yet they are everywhere—in our bodies, beds, and food. They are consequential to human survival. Still, we do not often notice them. And when we do, we see them not as companions but as pests. At the levels of corporeality, consciousness, and affect they appear to have little affinity with human life. Even social insects, such as honeybees, are unfamiliar. They may have language and the capacity to distinguish colors, they carry olfactory receptors that allow them to intelligently locate feeding places, and they exhibit forms of memory, as Karl von Frisch, the Austrian ethologist, famously observed.<sup>18</sup> But honeybees and other insects cannot speak.<sup>19</sup> They communicate in languages that humans cannot understand, via pheromones and strange movements, including “waggle dances,” modes unrecognizable to human consciousness and understanding.<sup>20</sup> Insects become palpable only when they impinge upon or disrupt human lives, when they are in places we do not want them to be, when they are doing things we do not want them to do. Then they become killable species.

Unlike other animals, insects in all their inscrutability exceed the grasp of human control. They defy attempts at regulation. They resist domestication. They do not obey. They “are radically different to anthropocentric norms,” they “perform a *feral charisma* that is in stark contrast to the anthropomorphic cuddly charisma” commonly associated with

cats, dogs, and other domestic animals.<sup>21</sup> Unsettling and unfamiliar, abject and disgusting, we cannot see ourselves in them. “The more we look,” writes Hugh Raffles, “the less we know. They are not like us. They do not respond to acts of love or mercy or remorse.” This lack of responsiveness “is worse than indifference. It is a deep, dead space without reciprocity, recognition, or redemption.”<sup>22</sup> There are too many of them, fecund, proliferating. They are constantly moving. They do not go away. Because they are foreign and not like us, they can be killed without consequence. Not surprisingly, insects have been a recurring *racial* trope in acts of mass colonial and postcolonial violence. The racial and abject, transformed into insects, can be killed with impunity. Native vermin, Tutsi cockroach, Jew lice.<sup>23</sup>

To the ordinary observer, insects may appear strange, incomprehensible, insignificant, and even killable, but to entomologists they are remarkable in all their species diversity, richness, and multiplicity. It is in their fecundity, ferality, and inscrutability that insects vividly display the plasticity of life. Insect species are constantly evolving, transforming, and innovating. Their mobility of life exceeds established modes of intelligibility and regimes of regulation.<sup>24</sup> According to entomologists, insects are the multicellular organisms that have diversified most successfully on this planet; of the 1.4 million species identified to date, insects constitute 1 million.<sup>25</sup> In many, a single genome displays a remarkable capacity to accommodate a wide range of disparate phenotypes responsive to changes in environmental conditions.<sup>26</sup> This plasticity is especially vivid in holometabolous insects that fully metamorphose, including bees, butterflies, and moths, enabling these species to successfully alter their morphology, physiology, and behavior. The result has been twofold: the production of new insect life-forms on the one hand and an unprecedented resilience of existing insect forms, allowing survival in the face of hostile conditions, on the other. Whereas global climate change has held devastating effects for many animal species, it has presented new opportunities for insects to divide, differentiate, and evolve. This is not to suggest that insects should be regarded as indefinitely plastic. For entomologists, plasticity can be both adaptive and nonadaptive, generating new forms of life and death.<sup>27</sup> Honeybees, for example, have been devastated by global ecological changes, including the spread of diseases and the use of agricultural pesticides. As one-third of the world’s crops depend on bees for pollination, the growing collapse of bee colonies and the resulting decline of bee populations hold significant



implications for human and nonhuman life, significantly affecting global food supplies in years to come.<sup>28</sup>

Plastic and plasticity, as I have said, carry multiple and even opposing meanings: as synthetic and artificial, as biological and neuronal, as oppressive and transformative. Given these disparate conceptualizations, in what ways might insects be considered plastic? All organisms, from the most elementary to the most complex, exhibit some degree of plasticity, an ability to change, transform, and explode in response to internal changes and external stimuli. In Malabou's characterization, plasticity is the ability to give and receive form while also holding the "capacity to annihilate the very form it is able to receive or create." *Plastique*, she explains, "from which we get the words *plastiquage* and *plastiquer*, is an explosive substance made of nitroglycerine and nitrocellulose, capable of causing violent explosions."<sup>29</sup> In the terms of neuroplasticity, which forms a central focus in her elaboration, the brain draws its vitality, its life, from its "perpetual change in plasticity (which is also to say a plasticity of change itself)."<sup>30</sup> This ever-changing brain holds a potentially explosive capacity, as Malabou elaborates in her efforts to politicize neuroscience. This possibility comes from an awakening of the brain, an explosion "against a certain culture of docility" that can provide openings for another world.<sup>31</sup> In the context of insect life, plasticity is certainly the ability to give, receive, and annihilate form as evidenced in the process of metamorphosis, for example. However, the changes effected by plasticity are often difficult to specify and isolate. Although many insects do have plastic brains, they also manifest other forms of plasticity. Hymenoptera, including bees and wasps, exhibit a plasticity that is developmental, morphological, and phenotypical.<sup>32</sup> Given this wide range, the meanings of insect plasticity have themselves changed and can no longer be limited to the brain and its development alone.<sup>33</sup> Rather, plasticity might more accurately be regarded as an integral force animating insect life and death.

For critical vitalists, including Henri Bergson, the explosion of form is not something to be commanded, as in the case of awakening the brain. Rather, what Bergson calls vitality and what we might also term plasticity is more fundamentally the very essence of life itself. "*Life is like a current passing from germ to germ through the medium of a developed organism,*" Bergson maintains.<sup>34</sup> The explosion of life, its creative bursts and its continual transformations, signal more than life's mutability. It demonstrates the ceaseless change, invention, creation, and emergence

of life (and death) unfolding on a path that is successive but has no telos and thus pointing to life's inherent uncertainty and unpredictability. "The circumstances are not a mold into which life is inserted and whose form life adopts . . . There is no form yet, and life must create a form for itself, suited to the circumstances which are made for it."<sup>35</sup> For Bergson, this is the vital impulse of life; the explosive aspect of movement, the lack of a predetermined program, the unforeseeability of the future.<sup>36</sup>

Departing from Darwin and Lamarck, Bergson identifies this vitality of life, its plasticity, as further evidence that life does not merely adapt to its environment but alters and aspires to move beyond itself, creating new forms and species in the process.<sup>37</sup> Although all life-forms—human, animal, plant—are plastic and undergo continual change through the birth and death of cells, for example, these interior changes, Bergson suggests, do not often capture the attention of science or philosophy. Change is happening continuously in life, whether we see it or not. But we are opposed to this, writes Bergson; against this idea of continual change, "our whole intellect rises in revolt."<sup>38</sup> Where such internal and continual changes are visually and corporeally apparent is in the life cycle of insects. The plasticity of insects affords them the ability to alter their phenotype and morphology, not merely as adaptation but as *reply* to internal and external factors.<sup>39</sup> The mushroom bodies of honeybees, for example, have undergone noticeable transformations in volume encouraged through ecological changes, experience, and the social organization of hives.<sup>40</sup> The vivid materialization of plasticity in insects is partly what has rendered them enigmatic and compelling figures, sources of wonderment that mark the limits of the human in Western philosophy and literature.<sup>41</sup>

Although plasticity spans insect life cycles, it is most visually apparent in the process of metamorphosis. Metamorphosis is regarded as an age-related and thus developmental rite of passage that occurs in certain species, most notably holometabolous insects. Here, eggs become larvae, pupae, and eventually adults. Throughout this process, form is simultaneously emergent and eradicated. A bee larva reconstructs itself at the pupal stage and has little resemblance to an adult bee.<sup>42</sup> Metamorphosis has long been understood to be a genetic process, inevitable and thus predictable. Recently, entomologists have argued that these transformations are deeply influenced by external and environmental conditions and changes. In the case of honeybees, behavioral differences and the socially determined division of labor are now believed



to be influenced by environmental stimuli. Whether the bee will become a worker or a queen, the division of labor into reproductive and nonreproductive phenotypes, as well as the shift from brood care to foraging that occurs amongst adult bees, has now been attributed to external influences at the larval stage.<sup>43</sup> Metamorphosis has been identified as a key developmental change in insect forms. Yet for entomologists, it is difficult to draw clear distinctions between metamorphosis and plasticity. The primary difference is that the latter affords insects the ability to innovate in the face of changing internal and external conditions, qualities that might intensify during the process of metamorphosis but that extend and continue beyond it.

Never referencing entomology explicitly, Bergson questions whether the mutability of life, its continual emergence in both insects and humans, can so easily be compartmentalized as predictable life changes. Puberty and menopause “in which the individual is completely transformed are quite comparable to changes in the course of the larvae or embryonic life,” he observes.<sup>44</sup> For Bergson what is “properly vital in growing old is the insensible, infinitely graduated, continuance of the change of form.”<sup>45</sup> Metamorphosis, puberty, and menopause, he contends, might be age-related and thus successive processes, but they are not teleological. They do not follow a predetermined plan but are merely spikes, evidence of the continual and ongoing change that is life. Evolution, Bergson argues, “has actually taken place through millions of individuals on divergent lines, each ending at a crossing from which new paths radiate, and so on indefinitely.”<sup>46</sup> The markers of corporeal development occur at particular moments but are not easily plotted along familiar lines of growth.

For entomologists, metamorphosis and plasticity each point to changes in neuronal, morphological, and phenotypical development. While they intersect and interrelate, they remain differentiated processes. The former occurs at a certain point in the insect life cycle. Plasticity, by contrast, is thought to be ongoing and continual, allowing insects, at various points in life to respond to environmental change and to innovate in their surroundings, allowing escape from predators, for example. In *The Future of Hegel*, Malabou contends that the relation between plasticity and metamorphosis is not yet fully developed, “appearing here as synonyms rather than distinct processes.”<sup>47</sup> In a world with no outside, metamorphosis, she argues, can open possibilities for transformation. “To think of the formation of a way out in the absence of a

way out, within the closure, is to think about an immanent disruption, a sudden transformation without any change of ground, a mutation that produces a new form of identity and makes the former one explode.”<sup>48</sup> Thus, for Malabou, metamorphosis is not a mythological or fictive reality but an “ontological essence.”<sup>49</sup> In insect worlds, it is plasticity rather than metamorphosis that signifies the ontology of life, one that provides the impetus for continual and constant change, one that becomes a possible line of flight. While insect plasticity has facilitated richness in phenotypical diversity and has reduced the likelihood of extinction for some species, it has held varied effects. For some insects, transformation has extended life while in others it has produced death. Still in others, it has enabled “plastic species to be successful colonizers.”<sup>50</sup>

What might this brief foray through entomology and the plastic life of insects offer to a wider discussion of plasticity and its ethico-political possibilities? To begin, plasticity must be conceived as both a life and death force, facilitating the creation of new life-forms and the destruction of others. Second, we must remember that the immanent disruption that Malabou lauds as holding potential for sociopolitical transformation and change is embedded within and is the product of unequal configurations of globality. Both of these forces are evident in the growing concern surrounding insects. Recently, the plasticity of insect life has become of interest to scientists, the United Nations, and US military personnel.<sup>51</sup> Insects have been newly mobilized and deployed in changing constellations of global biopolitics, demonstrating the mutual vulnerability of human and nonhuman life-forms. Growing concerns over global climate change and eco- and bioterrorism and their interconnections, for example, have rendered humans increasingly susceptible to the forces of nature. The natural world, including insects, has been regarded as essential to the futurity of human life and death. According to recent reports, insects will figure prominently in initiatives aimed at prolonging and saving human life in the global north. To begin, the world’s ever-expanding population has created a scarcity in meat proteins that has generated particular concern in the West. Insects, scientists have argued, are highly efficient in converting vegetation and leaves into edible proteins.<sup>52</sup> In the face of anticipated food shortages, many have predicted that insects will be key agents in the production of resource-efficient foods and are also to become staples in Western diets.<sup>53</sup> Unlike meat production, which requires a large territorial base, insects are equally high sources of protein and can be easily farmed on



small tracts of land. Unlike cows, they do not produce the same level of greenhouse gases and thus are friendlier to the environment.

Insects have other roles to play in the survival of Western and human life. The plasticity of insect life has garnered close attention from the US military as bees and other insects have been hailed as potential collaborators in the contemporary war on terror. Not yet “companion species,” insects are newly becoming what I call “companions of war.” Although insects have been deployed in military battles since antiquity, more recently and as a result of their plasticity, various types of insects have been harnessed as potential agents of surveillance enlisted to protect Western ways of life against the putative and uncertain threats of (Islamic) terrorism.<sup>54</sup> While the olfactory senses of honeybees are being trained to locate dangerous chemicals, including those found in landmines, snails and cockroaches are becoming “animal/machine hybrids,” experiments aimed at harnessing their natural sensors and energies in pursuit of microsurveillance. Insect forms have also been appropriated as military prototypes embodied in drones and new nanotechnologies.<sup>55</sup> Taken together, what these military and technological developments signal is that plasticity is not only the ability to give and receive form but also its explosion and annihilation, a point that Malabou emphasizes in her references to nitroglycerine and nitrocellulose.<sup>56</sup> The plasticity of the bee and the entomology of war as combustion and explosion are tightly entangled and vividly condensed in the words *bomb* and *bombard*. They derive from the Greek *bombos*, which carries a double meaning, both signifying the bee and intimating a humming, buzzing, and booming, onomatopoeically reflecting the sounds of bees and bombs.<sup>57</sup> These entanglements gesture to the ambiguities of plasticity, its ability to produce new forms and conditions, but ones that may not necessarily be emancipatory and/or transformative in the ways predicted or anticipated. Although the effects of plasticity may not be determined in advance, what these recent US military appropriations highlight are the crucial interconnections between human and insect life and death and the need to rethink their form and substance.

#### BIOPOLITICS AND THE REFIGURING OF LIFE ITSELF

The plastic qualities of insects, their mutability and malleability, allow them to be easily trained and conditioned. Honeybees, for instance, demonstrate a considerable plasticity in spatial memory, facilitating the

vital storage of information such as the location and position of new nests.<sup>58</sup> Their antennal lobes are covered with chemoreceptors, triple those of insects such as mosquitoes and moths, enabling them to easily distinguish between flowers, locate pollen, and engage in social communication. Olfaction is the sensory modality that allows bees to retain memory. Because of their plasticity, including this heightened and malleable sense of smell, bees can easily be taught to associate the onset of light, smoke, or airflow with reward.<sup>59</sup> The adaptability of honeybees has been lauded and harnessed, rendering them prospective and promising wartime companions.

For over a decade, the Defense Advanced Research Project Agency (DARPA) has actively mobilized the plasticity of honeybees in the advancement of military technologies. Through its various research sites in the United States, most notably Los Alamos, DARPA has been training bees to detect hazardous chemicals commonly found in explosives.<sup>60</sup> Because of their heightened olfactory senses and the sheer number of chemoreceptors on their antennal lobes, the training process is swift: with a sugar and water reward, bees can rapidly and effectively be taught to ignore pollen and to smell and locate chemicals instead. By placing explosives near food sources, DARPA has successfully been training bees in labs. The objective is to use honeybees and other insects on the front lines in war, replacing “companion species,” including dogs. According to recent reports, many of the dogs deployed in Afghanistan and Iraq to aid US soldiers in finding landmines and other explosives are—like human military personnel—also affected by posttraumatic stress disorder.<sup>61</sup> Because of their inscrutability, insects—unlike dogs—do not evoke the same ethical crisis over loss of life.

This growing interest in bees is not limited to their individual and corporeal capacities alone. Rather, honeybees as a collectivity and as an aggregate in hives have also been a source of investigation and inspiration for scientists and military personnel. The architecture of the hive and the organization of bees offer valuable insights into the shifting configurations of global capitalism and (anti)terrorism. In *What Should We Do with Our Brain?*, Malabou observes that sovereign command, like the brain, no longer operates through a centralized system. Instead, it works through an organizational agility, a suppleness that is held together through a multiplicity and dispersion of centers.<sup>62</sup> In the contemporary moment, the horizon of global capitalism is ever expanding, drawing in the peripheries and incorporating the most marginal



populations from the global south.<sup>63</sup> Malabou limits her observations largely to capitalism. However, this decentralized model of command is also operative in current conditions of war in which sites of putative threat and danger are also alleged to be scattered and dispersed.

Shortly after the September 11 attacks, the US government under George W. Bush claimed that the war on terror would be a new type of war—not a war fought between sovereign states but between the West and a new enemy that defied territorial boundaries. Reflecting on these changes, Zygmunt Bauman has argued that in the post-9/11 era the “global space has assumed the character of a frontierland.”<sup>64</sup> Here, threats and responses are increasingly diffuse rather than centralized, alliances are constantly in flux, and extreme violence is legitimated in a fight against enemies believed to have no clear or identifiable borders. The enemy has become increasingly difficult to determine, the US government has argued, rendering the dangers of terrorism uncertain, unpredictable, and perilous. Not only have the conditions of war changed in the last decade, but this new “planetary frontierland” has interconnected the world’s regions in unprecedented ways.<sup>65</sup>

Entwined with global capitalism, these new conditions of global war can also be mapped through the reticular organization of the bee colony. As a social and collaborative species, honeybees cannot survive individually and/or beyond their hive. They are interdependent. Despite their seemingly hierarchical and caste-based structure, the hive reflects an *absence* of hierarchy and a *lack* of centrality.<sup>66</sup> Each hive comprises a queen, female workers, and male drones. However, the queen is chosen by her workers and maintains sovereignty only over reproduction, laying thousands of eggs to ensure the futurity of the hive but exercising little control over its operation and organization. Bees depend on one another. Their collectivity and division of labor is central to their survival. This is not to suggest that the geopolitical global order is one without hierarchy. Just as there remains a clear order of civility and sovereignty among nation-states, the putative newness of this continual war and the intensities of violence it has made possible are described through a *lack of centrality*. The United States and its allies claim that they have been responding to the diffuse networks of terrorist cells, their absence of visibility, and their self-organizing structure, all of which demand tactics and strategies that are resonant with and echo the reticular design of the hive.<sup>67</sup> Perhaps unsurprisingly the plasticity of the individual bee and the population has been appropriated and re-created by the US mili-

tary, as it mobilizes the honeybee as a potential agent of this new war and mimics its corporeal and collective qualities via drones. Although bee training has not yet been actualized in battle, drone warfare has proliferated under the Obama regime.<sup>68</sup> As scientists, entomologists, and military personnel continue to conduct research and assess the feasibility of deploying insects in a world of uncertain and unpredictable threat, insect plasticity has become pivotal to the production of new forms of surveillance in the pursuit of national and global security.<sup>69</sup> As the insect becomes a *dispositif* in contemporary biopolitics, the biopolitical requires a rethinking of life itself.

Since the publication of Foucault’s *History of Sexuality, Volume 1*, and more recently with his newly translated lectures, his formulation of biopolitics has fomented a vibrant site of debate in critical theory and political philosophy. Amidst claims of the growing biologization of politics and the politicization of biology largely attributed to technological innovations rapidly changing the meanings of life, Foucault’s fragmented and unfinished thoughts have been reinvigorated as holding crucial insights into changing configurations of power from the eighteenth century to the contemporary moment.<sup>70</sup> Arguing that the rise of biopower in the eighteenth century lent a “vitalist character” to the existence of individuals as political subjects and to populations as sites of management and intervention, Foucault famously and contentiously claimed that biopower emerged as a new modality of government that seized life through a radically different configuration of dynamic forces.<sup>71</sup> The emergence of this new mode of power, many have interpreted Foucault as saying, eroded the centrality and significance of sovereign command.<sup>72</sup> In the first lecture of *Security, Territory, Population*, Foucault famously defines biopower as “the set of mechanisms through which the basic biological features of the human species became the object of a political strategy, of a general strategy of power.” From the eighteenth century onwards, he claims, “modern Western societies took on board the fundamental biological fact that human beings are a species.”<sup>73</sup>

Foucault’s many critics and interlocutors have raised important questions regarding his formulations of biopower and biopolitics, alleging that his conceptualizations are vague and inconsistent and that his periodization and geographical focus are Eurocentric and parochial.<sup>74</sup> Several have also questioned his formulations of life. For Robert Esposito, it is because Foucault was so focused on questions of power that he “never sufficiently articulated the concept of politics” or the contours



of “life.”<sup>75</sup> Although Foucault described life “analytically in its historical-institutional, economic, social, and productive nervature,” Esposito insists that in Foucault’s analytic, life remains insufficiently problematized “with regard to its epistemological constitution.”<sup>76</sup> Foucault’s schematic, I add, does not adequately address the ontology of life. The formulation and politicization of life in Foucault’s writings and lectures is narrowly premised and established upon the anthropocentric claim that “life” is human life and nothing more.

Amid these pressing critiques of Foucault’s conceptions of biopower and biopolitics, there has been a growing concern with explicating, expanding, and specifying the contours of life. Whose life and which life has newly become the object of power? In what ways have life and death been/become integrally linked as political strategies of the state, global capitalism, and war? How has the vitality and investment in some forms of life in colonial states and in late liberal democracies been possible through death? Put differently, how have the deaths of the racial, colonial, abnormal, diseased, and dangerous figured in struggles over (Western) life?<sup>77</sup> The interpenetration of life and death that have been central to late nineteenth- and early twentieth-century vitalisms and that animate Foucault’s own vitalist understandings of biopolitics gesture to the ambiguities in his own thinking and to the narrow interpretations of his writings and lectures. Sovereign power and death were never displaced by biopower and life, as some have read Foucault as saying. Rather, biopolitical regimes often operated through sovereign command, rendering some lives worthy of economic and scientific investment and others inhuman, wasted, and expendable.<sup>78</sup> These debates have pointed to the limits of Foucault’s conceptualizations while opening new ways of moving beyond and expanding his analytics. Despite the rich insights and developments in this literature, one thread remains constant: life continues to be understood as human life and man-as-species.<sup>79</sup>

To be clear, Foucault’s formulations of the biopolitical have been revised and expanded to address the animalization of life, most notably in the work of Giorgio Agamben.<sup>80</sup> Yet even in his distinctions and differentiations between *zoë* and *bios*, animalization persists as *metaphor* rather than materiality. Thus, while the *bios* in biopolitics, following in part from Agamben, has come under increasing scrutiny of late, it remains tightly tethered to Foucault’s “man-as-living-being.”<sup>81</sup> Under contemporary conditions of war, as my discussion of insects has thus far intimated, life can no longer be conceived through an anthropocentric

focus on the figure of the human. While tactics of war have always encompassed more-than-human life-forms, including microbes and environmental conditions, what has changed is that the futures of human life and death (as instantiated by Western life), whether in the context of global food or global war, have become increasingly intertwined with the agentive force of insects. How might a recasting of the biopolitical through a *bios* that accounts for this mutuality and thus erodes the ontological distinctions between human and nonhuman life open new analytic and political possibilities for rethinking life in the global present? As a force no longer contained within the human body or population but as plasticity, a vital and creative burst that runs through and interconnects human and nonhuman life.<sup>82</sup>

Recent efforts to conceptualize the war on terror provide some generative openings in this regard. Writing on war and the weather, Brian Massumi explicitly questions the *bios* of biopolitics through a compelling analysis of nature and war. “The figure of today’s threat,” he writes, “is the suddenly irrupting, locally self-organizing, systematically self-amplifying threat of large-scale disruption,” a threat that is not only “indiscriminate but *indiscriminable*. Its continual microflapping in the background makes it indistinguishable from the general environment.”<sup>83</sup> Hurricane Katrina, he argues, was the “meteorological equivalent of the improvised devices then exploding on the scene of the US war effort in Iraq,” rendering war and the weather equally unpredictable and indiscernible.<sup>84</sup> Here, Massumi begins his meditations by raising a question that Foucault poses in *The Birth of Biopolitics*: “does power’s becoming-environmental ‘mean that’, politically, ‘we are dealing with natural subjects?’”<sup>85</sup> Acknowledging that Foucault’s observations were specific to a particular historical moment, Massumi’s objective is to elaborate and expand these insights to the present context. It is where “Foucault’s question ends” that we must begin, he insists, “in light of how the recomposition of power, whose dawning he glimpsed in 1979, has since played out.”<sup>86</sup> Can this new configuration of environmental power, in which war and the weather are closely interconnected, still be considered an expression of biopolitics, Massumi asks? Beginning with the *bios* in biopolitics, Massumi argues that the current configuration of global power is an *environmental* and not a *biopolitical* one. What we are newly witnessing, he argues, is environmental power as ontopower, “a power through which being becomes . . . not a force against life” but “a positive force. It is positively productive of the particular form a life



will take next.”<sup>87</sup> For Massumi, what places this constellation of power outside the biopolitical is that environmental power, in his formulation, is a preemptive power that operates not on a territory but on a prototerritory in which life becomes unlivable.<sup>88</sup>

In his lectures at the Collège de France, Foucault does not fully or clearly distinguish between environmental power and biopolitics. Indeed, in “Society Must be Defended,” he emphasizes their interface. “Biopolitics’ last domain,” Foucault explains, is operative through the “control over relations between the human race, or human beings in so far as they are a species in so far as they are living beings, and their environment, the milieu in which they live.”<sup>89</sup> For Foucault, biopolitics “includes the direct effects of the geographical, climatic, or hydrographic environments,” including swamps and epidemics that became objects of state concern and intervention in the nineteenth century.<sup>90</sup> Although he continues to privilege the human as living being, Foucault’s brief gestures to the environment as a biopolitical force thus highlight, albeit momentarily, the possible interpenetration and interrelation of human and nonhuman life. That “the problem of the environment . . . has been created by the population and therefore has effects on the population” provides a small opening to rethink the *bios* in biopolitics as a vitality that exceeds “man-as-species,” a problematic that Massumi raises but ultimately does not pursue in his juxtaposition of war and the weather.

The distinctions that Massumi draws between the biopolitical and environmental on the one hand and his claims that the global contemporary has witnessed a “major shift” in the exercise of power via the environment on the other can be advanced only if the protracted histories of colonial violence commanded by European powers are successfully ignored and obfuscated. Critics have long noted that the colonial remains a palpable absence in Foucault’s corpus of lectures and writings, an absence we might conceive as replicated in Massumi’s analysis.<sup>91</sup> In the colonies, the biopolitical and environmental were never fully separate domains. Colonial violence acquired its force and gained traction through their interpenetration. The domestication of nature, including the death of the colonized, who were always already resigned to the natural world, were sites of struggle over the meanings and value of human, nonhuman, and inhuman life. The machinery of colonialism, its taxonomizing impulse, was aimed at categorizing and classifying different “species” of humans and of flora and fauna while distinguishing the lives that should live, that were in need of protection, from those that should die and that

demanded annihilation.<sup>92</sup> Fanon, like some of his contemporaries, was well attuned to the environmental entanglements of human and nonhuman life-forms: “The Algerians, the veiled women, the palm trees, and the camels make up the landscape, the *natural* background to the human presence of the French . . . Hostile nature, obstinate and fundamentally rebellious, is in fact represented in the colonies by the bush, by mosquitoes, natives, and fever, and colonization is a success when all this indocile nature has finally been tamed.”<sup>93</sup> For Fanon, life in the colonies was inevitably bound up with a hostile, forceful, and indiscriminate nature, indocile and rebellious, requiring a preemptive and violent expression of force to domesticate and eliminate the threats that *nature* posed to white European life.

Under current conditions of war, the world of nature, to paraphrase Foucault, has become a “dense transfer point for power,” a terrain on which struggles over human and nonhuman life and death continue to unfold.<sup>94</sup> The plasticity of insects, as I have suggested, renders them ideal companions of war, producing conditions in which war, nature, life, and death are inseparable. Over the past decade, commentators have routinely observed that the war on terror is both a response to and the product of a new and unprecedented battle, requiring a preemptive and intensifying violence that has legitimated the creation and imposition of new juridical regimes with little or no recourse to international law.<sup>95</sup> This is a new world, we are reminded, where the terrains of war are not easily legible, where distinctions between friend and enemy have become increasingly difficult if not impossible to delineate.<sup>96</sup> The enemy is alleged to be hidden throughout the tissues of a global population, traversing familiar divides between north/south, east/west, and foreign/domestic. The global war machine is no longer the domain of nation-states but includes private contractors, mercenaries, and extraterritorial organizations.<sup>97</sup> The targets are “suspects,” the military techniques, including the use of drones, are preemptive.

Preemptive power, as Massumi explains, averts disruptive events before they occur. These are tactics that do not forbid or proscribe behavior. They do not target the body but work on the environment and its modification, shaping the possible fields of action.<sup>98</sup> This preemptive power, I suggest, incorporates and operates through nonhuman agents as environmental forces. Efforts by the US military to train honeybees could be regarded as the development and deployment of preemption: bees sniffing chemicals, detecting explosives and landmines before they



detonate, preventing large-scale disruptions before they occur, protecting against the loss of Western life through the death of terrorism and those identified as “terrorists.” Insects as material form and prototype have informed US military technologies and tactical plans, dramatically reconfiguring the battlefield via the development and expanded use of drones and other insect-inspired technologies. Through the deployment of drones, those *suspected* of terrorism can now be identified, targeted, and assassinated in the interests of *prevention*, hundreds and even thousands of miles from the battlefield and through computer controls that are situated even farther from war zones.<sup>99</sup> Drones, swarms, and other military technologies, including nanos, have been closely modeled on the insect form, opening further possibilities for preemptive strike. By 2025, the US military estimates that nanos, which operate collaboratively like social insects (including honeybees), will be routinely deployed in combat operations. With an unlimited and unrestrained mobility to fly, crawl, adjust position, and navigate increasingly confined spaces, these machinic insects have been hailed as a prototype for the future, aimed at altering the environment and ultimately preventing threats and disruptions to Western ways of life.<sup>100</sup>

In the contemporary war on terror, insects have become what Foucault has termed a *dispositif*, a nonhuman agent incorporated into the “heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, [and] scientific statements,” all assembled to address the urgent need of global security.<sup>101</sup> In the current geopolitical context, the biopolitical as a global regime of life and death must be redefined beyond the individual/population and *zoë/bios* distinctions that have persisted in critical theory and political philosophy. The mutuality of insect and human life and death demands a conceptualization of life as a plastic and circulating force that exceeds “man-as-species” and highlights the interrelationality of the human/nonhuman.<sup>102</sup> By way of conclusion, let me elaborate this point on plasticity as life force through what I term political vitality.

#### POLITICAL VITALITY

Plasticity’s “native land” may well be the field of art, but it cannot be reduced or limited to art and aesthetics alone.<sup>103</sup> For Malabou, the promise of plasticity is to be found in its ethical and political potentiality. Plasticity, as she conceives it, is a kind of “metabolic power” that holds the

ability to explode and “*order transformation*.”<sup>104</sup> It is the “mutability of beings,” our plasticity, she insists, that “opens a future in the absence of any openness in the world.”<sup>105</sup> Stem cell plasticity is for Malabou a vivid example, “perhaps the very paradigm of the ‘open’ meaning of plasticity.”<sup>106</sup> This openness is the ability to harness the vitality of the brain and thus to change one’s destiny, a capacity that we hold and inhabit, she insists, but that we have not yet recognized. “What we are lacking,” Malabou contends, “is life, which is to say: *resistance*. Resistance is what we want,” plasticity unleashes its possibility.<sup>107</sup>

Plasticity is not solely a human potentiality. Rather, its capacity resides in all living things. Neuronal creativity, Malabou explains “is already at work in the most rudimentary nervous systems,” including the most elementary levels of animal life.<sup>108</sup> Insects, as I have suggested, demonstrate the breadth and possibilities of plasticity. Their ability to incite transformation in the face of internal, environmental, and ecological changes are evident in metamorphosis and in other phenotypical and morphological changes. Insect plasticity has enabled various species to survive by opening lines of flight and by producing modalities of endurance in an increasingly hostile world. Yet in the case of insects, it is precisely their plasticity, their ability to give, receive and annihilate form, that has rendered them easily appropriated, trainable, and adaptable as companions of war in the global war on terror. If plasticity, as I have intimated thus far, is generated and embedded in uneven distributions of power and is cultivated in global capitalism and perpetual war, what is its potentiality for change? Can plasticity be conceived as a creative burst that transforms nature into freedom? Is the radical potentiality that Malabou ascribes to plasticity as resistance to flexibility and as refusal of form sufficient for political transformation?<sup>109</sup> If plasticity is a current that runs through all forms of life, connecting bees, bombs, human life, and insect death, can it not be both a site of liberation *and* subjection?

Bergson’s vitalism, which he develops most fully in *Creative Evolution*, provides some generative opportunities through which to consider these questions. Bergson’s formulations of life as creative burst, so I claim, can be conceived in terms of plasticity.<sup>110</sup> Life, as an animating force, does carry plastic qualities: its ever-changing conditions open the possibility to form, transform, and respond to change itself. It is here that Bergson provides some useful intimations on the ethicopolitical possibilities of plasticity. Undoing the dualisms instantiated by modernity (science/



philosophy, nature/culture, and human/nonhuman), he points to the unceasing and indefinite creation of life as force that not only exists in all forms of life but runs through and across them. "The idea of transformation," he claims, "is already in germ in the natural classification of organized beings."<sup>111</sup> In the "animal and vegetable world," he continues, we see this ongoing interrelation "between the generator and the generated." As Bergson explains: "on the canvas which the ancestor passes on, and which his descendants possess in common, each puts his own original embroidery. True, the differences between the descendant and the ancestor are slight, and it may be asked whether the same living matter presents enough plasticity to take in turn such different forms as those of a fish, a reptile and a bird."<sup>112</sup>

It is in this context that Bergson explicitly identifies plasticity as life force and expands it not solely as *continuity* but as the *unity* of animal, plant, and human life. Up to "a certain period in its development," he writes, "the embryo of the bird is hardly distinguishable from that of the reptile, and that the individual develops, throughout the embryonic life in general, a series of transformations comparable to those through which, according to the theory of evolution, one species passes into another." Daily and "before our eyes, the highest forms of life are springing from a very elementary form."<sup>113</sup> Several pages later, in a brief footnote Bergson elaborates accordingly: in "the domain of life the elements have no real and separable existence."<sup>114</sup> There is no life "which does not contain, in a rudimentary state," he continues, "the essential characters of most other manifestations."<sup>115</sup> Thus, plasticity, as Bergson adumbrates here, is a force that animates and permeates human and nonhuman life-forms, connecting the most elementary to the most complex. It interconnects and unifies these forms of life, unraveling their distinctions and hierarchies, and all the while demonstrating that evolution is successive but never linear or predetermined. In Bergson's formulation, this creative capacity of life, its ability to evolve along divergent lines, is what repudiates the mechanistic and teleological understandings of life and what opens possibilities for creative bursts and transformations.

Bergson further develops this unity of matter, its immanent relationality, in his famous discussion of instinct and intelligence. Like evolution itself, instinct and intelligence cannot be perceived as successive states. Nor can they be viewed as privileging the superiority of the human (via intelligence) over the animal (via instinct). Instead, Bergson formulates these as opposing, complementary, and interrelated ways of knowing.

"There is no intelligence in which some traces of instinct are not to be discovered, more especially no instinct that is not surrounded with a fringe of intelligence."<sup>116</sup> For Bergson, instinct and intelligence are "tendencies" as opposed to "things," and neither can be rigidly defined, hierarchized, or fully separated from the other.<sup>117</sup>

Drawing on the horsefly and the wasp as his examples, Bergson attends to the difficulties in distinguishing instinct from intelligence and insect and human ways of knowing: "When the horse-fly lays its eggs on the legs or shoulders of the horse, it acts as if it knew that its larva has to develop in the horse's stomach and that the horse, in licking itself, will convey the larva into its digestive tract. When a paralyzing wasp stings its victim on just those points where the nervous centers lie, so as to render it motionless without killing it, it acts like a learned entomologist and a skillful surgeon rolled into one."<sup>118</sup> Here, Bergson concludes that instinct and intelligence are not to be ascribed an order or value but must be regarded as different ways of approaching, understanding, acting in and on the world. Whereas the former is a knowledge of matter, he explains, the latter is a knowledge of form, and neither can be fully separated.<sup>119</sup> "On the one hand, the most perfect instinct of the insect is accompanied by gleams of intelligence, if only in the choice of place, time, and materials of construction," he writes. Bees, for instance, "build in the open air, invent new and really intelligent arrangements to adapt themselves to such new conditions."<sup>120</sup> Thus, intelligence, he cautions should not be considered superior to instinct, as "intelligence has even more need of instinct than instinct has of intelligence." The power "to give shape to crude matter involves already a superior degree of organization, a degree to which the animal could not have risen, save on the wings of instinct."<sup>121</sup>

Life, for Bergson, is clearly situated beyond the anthropocentricity of human life. The creative impulses that animate and penetrate all living things are always in a process of becoming and follow paths that are never willed by human agents alone. Plasticity, therefore, already exists, traverses, and connects and thus does not require an awakening, as Malabou suggests.<sup>122</sup> Rather, plasticity as creative life force is immanent to the vitality of human and nonhuman life, emerging in part through their interconnections and interrelationality. By formulating life as more-than-human and as interpenetrating, Bergson offers useful possibilities to rethink the *bios* of biopolitics beyond "man-as-species." I am calling this conception of plasticity *political vitality*. By taking nonhuman life



seriously he aims to erode the ontological separation between nature/culture, human/nonhuman, a process of disentanglement that Bergson begins in his analysis of instinct and intelligence. This is an ethicopolitical position that moves away from conceptions of life as solely human but that also rejects the anthropomorphizing of animals and plants by granting them rights, for example.<sup>123</sup> It is a conception of life and an ethicopolitical project that highlights the mutual relationality, vulnerability, and dependency of living things as evidenced by the insect as dispositif. In so doing, such conceptualization emphasizes that plasticity itself is never beyond power, and while it might open “the form of another possible world,” as Malabou anticipates, plasticity as a product of asymmetrical geopolitics can also be generative of other dystopic worlds always already situated within uneven distributions of life and death.<sup>124</sup>

Conceptualizations of life, Bergson argues, can never be separated from theories of knowledge. Thus, life itself offers an ontoepistemological critique. “A theory of life that is not accompanied by a criticism of knowledge,” he cautions, “is obliged to accept, as they stand, the concepts which the understanding puts at its disposal.”<sup>125</sup> Formulations of life and knowledge, he argues, “should join each other . . . as a circular process” that should “push each other unceasingly.”<sup>126</sup> Entangled global futures of climate change, food shortages, and everyday wars demand a different conception of life, one that moves beyond the Western and/as the human. In *Insectopedia*, Hugh Raffles compellingly points to the mutual and growing entanglements between humans and insects:

There is the nightmare of the military that funds nearly all basic research in insect science, the nightmare of probes into brains and razors into eyes. . . . These are the nightmares that dream of coming wars, of insect wars without vulnerable central commands, forming and dispersing, congealing and dissolving, decentered, networked; of netwar, of network-centric warfare, of no causality wars (at least not on our team). . . . These are the nightmares of invisible terrorists, swarming without number, invading intimate places and unguarded moments. The nightmares of our age, nightmares of emergence, of a hive of evil, a brood of bad people, a superorganism beyond individuals. . . . Where are the bees now? Collapsing in their colonies, gliding through their plastic mazes, sniffing out explosives . . . Keeping us safe. Helping us sleep at night.<sup>127</sup>

These nightmares are not of a disturbing past already lived but dwell in the threat of the present and the future to come, a present and future in which the differentiations that have for so long aimed to circumscribe life as the principal domain of the human can no longer persist or endure. The global and interspecies biopolitical regimes in which humans and nonhumans are enlisted thus demand a rethinking of life as more-than-human through its plasticity, its mutual relationality and vulnerability. The contemporary moment is indeed an era of plastic, as both Barthes and Malabou predicted. Not as imitation, synthetic and artificial, but as a more-than-substance, a creative impulse, that penetrates, circulates, and interconnects in ways that might rupture those racial oppositions (human/nonhuman, north/south, east/west) through which life and death continue to be understood and (de)valued.

#### NOTES

I want to thank the participants at the “Plastic Materialities” workshop held at Goodenough College, London, November 2011. In particular, I thank Brenna Bhandar, Jon Goldberg-Hiller, and Catherine Malabou. I am also grateful to Thomas Kemple and Sherrie Dille for conversations that pushed me to develop the ideas presented here and to Barnor Hesse and Minelle Mahtani for comments and suggestions. Please direct all correspondence to renisa@mail.ubc.ca.

1. Barthes, *Mythologies*.
2. Barthes, *Mythologies*, 98.
3. Barthes, *Mythologies*, 99. First emphasis is in original, second emphasis is mine.
4. Catherine Malabou formulates plasticity in a series of books. Those translated into English include *Future of Hegel*; *What Should We Do*; and *Plasticity at the Dusk*.
5. Malabou, *Plasticity at the Dusk*, 67.
6. Malabou, *Plasticity at the Dusk*, 57; emphasis in original.
7. Malabou, *Plasticity at the Dusk*.
8. Malabou, *Plasticity at the Dusk*, 74.
9. These distinctions have been most vigorously undone in posthumanist and animal studies. Donna Haraway’s work has been central in both literatures. See Haraway, *Simians*, and *When Species Meet*.
10. “Man-as-species” is drawn from Foucault, “Society Must be Defended,” 247. The focus of contemporary biopolitics, I argue throughout, has maintained the human as a privileged ontology. Although Agamben dwells at length on the animalization of human life as *homo sacer*, his discussion emphasizes

animality in metaphorical rather than material terms. See Agamben, *Homo Sacer*. The more recent literature that engages biotechnologies and/or animal life has emphasized how the human has been transformed by biotechnologies, as opposed to approaching the nonhuman animal as an agent in and of itself and/or how humans have been governed as animals. On the latter, see Pandian, "Pastoral Power," 85–117. See also Chen, *Animacies*; Shukin, *Animal Capital*. For a recent collection that begins expanding the biopolitical to include a critical evaluation of human and nonhuman relations, see Livingston and Puar, "Interspecies."

11. My interpretation of plasticity here is drawn from entomology and is also informed by the work of Henri Bergson, who viewed life as a creative burst that aimed to move beyond itself. See Bergson, *Creative Evolution*. I expand and elaborate this view in the final section of this chapter.

12. It is important to remember that north/south and east/west divisions have always been constituted in racial terms. For a fascinating discussion of the global terrain as marked by the racial, see da Silva, *Global Idea of Race*. The targets in the global war on terror—Afghanistan, Iraq, Palestine, Pakistan—while also configured racially, put north/south divides in question.

13. The term "ontological combustion" comes from Malabou's reflections on Hegel's discussion of birth as both blossoming and explosion. See Malabou, *Future of Hegel*, 187.

14. See, for example, Césaire, *Discourse on Colonialism*; Fanon, *Wretched of the Earth*; Mbembe, *On the Postcolony*.

15. My discussion of insects and war is especially informed by the recent work of Kosek, "Ecologies of Empire," 650–78, and Raffles, *Insectopedia*.

16. Although Bergson does not address plasticity beyond one brief mention in *Creative Evolution*, I read his conceptualization of vitality as a plasticity of life. Importantly, his work is also useful in developing a more-than-human view of plasticity. Bergson undoes the human/nonhuman dualism by emphasizing the (inter)relationality and connectivity of human, plant, and animal life forms. My arguments here build on and expand from Bergson, as I am interested not only in human/nonhuman life but also in the interrelations of human/nonhuman death.

17. The term "companion species" comes from Haraway, *Companion Species Manifesto*. Haraway distinguishes between "companion species" and "companion animals," explaining that the former cannot be reduced to the latter, although they often are. Yet "companion species" in her own work tend to include dogs (specifically her dog, Ms. Cayenne Pepper), as well as baboons, as opposed to insects, fish, and other species that seem distant from human life-forms. See Haraway, "Encounters," 97–114. Insects, I suggest here, are not only antithetical to humans but are opposed to these sentient animals and thus are not often regarded as "companion animals" or "companion species."

18. See Raffles, *Insectopedia*, 171.

19. For a brilliant analysis of the mosquito that cannot speak, see Mitchell, *Rule of Experts*, ch. 1.

20. On waggle dances, see Wenner, "Sound Production," 79–95.

21. Lorimer, "Nonhuman Charisma," 920.

22. Raffles, *Insectopedia*, 44.

23. On colonialism, insects, and annihilation, see Césaire, *Discourse on Colonialism*; Fanon, *Wretched of the Earth*; Mamdani, *Victims*; Mavhunga, "Vermin Beings," 151–76. On Jew lice see Mavhunga, "Vermin Beings," esp. "Jews," 141–61.

24. For Bergson, life is "mobility itself." See Bergson, *Creative Evolution*, 128.

25. Moczek, "Phenotypical Plasticity," 594.

26. Moczek, "Phenotypical Plasticity," 594.

27. Nylin and Gotthard, "Plasticity," 63–83.

28. Kosek, "Ecologies of Empire," 650.

29. Malabou, *What Should We Do*, 5.

30. Malabou, *What Should We Do*, 66.

31. Malabou, *What Should We Do*, 66, 80.

32. See Groh and Meinertzhagen, "Brain Plasticity," table 1.

33. According to Groh and Meinertzhagen, "Brain Plasticity," 280, the plasticity of insect brains no longer falls neatly within existing categories but overlaps with other forms of plasticity and is thus difficult to distinguish/isolate.

34. Bergson, *Creative Evolution*, 27; emphasis in original.

35. Bergson, *Creative Evolution*, 58.

36. Although Bergson says little of death, he does speak of aging, which he describes as an inevitability. Inevitability and teleology are not the same, however. In his critique of Leibniz, Bergson rejects teleology as the realization of a program already determined. Death may be an inevitability, but the course of life is not programmed to end in death in a familiar or predictable path. Life, for Bergson, is filled with ceaseless change that renders predictability and development to be impossible. See Bergson, *Creative Evolution*, 39.

37. Bergson, *Creative Evolution*, 128.

38. Bergson, *Creative Evolution*, 29.

39. Bergson's famous quote is: "adapting is not repeating, but replying." Bergson, *Creative Evolution*, 58; emphasis in original.

40. Groh and Meinertzhagen, "Brain Plasticity," 279.

41. In *Creative Evolution*, many of Bergson's references are to insects and insect forms. Another famous discussion of insects appears in Franz Kafka's short story "The Metamorphosis." See Kafka, *Metamorphosis*.

42. See Winston, *Honey Bee*, esp. ch. 3.

43. Groh and Meinertzhagen, "Brain Plasticity."



44. Bergson, *Creative Evolution*, 18–19.
45. Bergson, *Creative Evolution*, 19.
46. Bergson, *Creative Evolution*, 53.
47. Malabou, *Future of Hegel*, 24.
48. Malabou, *Future of Hegel*, 67.
49. Malabou, *Future of Hegel*, 68.
50. Moczek, "Phenotypical Plasticity," 596.
51. The UN has been encouraging the introduction of insects into global diets. See White, "US Food Advisor."
52. BBC Food Blog, "Why Not Eat Insects."
53. BBC News Europe, "Dutchman Urges World."
54. On the deployment of insects in war, see Lockwood, *Six-Legged Soldiers*. For a fascinating ethnography of the US military's deployment of honeybees, see Kosek, "Ecologies of Empire."
55. See, e.g., Gorman, "Snails of War."
56. Malabou, *What Should We Do*, 5.
57. See Lockwood, *Six-Legged Soldiers*, 24. Lockwood makes this point with respect to the etymology of "bombard," which is also cited in Kosek, "Ecologies of Empire," 654.
58. Robinson and Dyer, "Plasticity of Spatial Memory," 311–20.
59. Wenner and Johnson, "Simple Conditioning," 154–55.
60. See Kosek, "Ecologies of Empire," 655–57.
61. The *New York Times* published a series of articles on the prevalence of post-traumatic stress disorder in dogs working in Iraq. See Dao, "More Military Dogs."
62. Malabou, *What Should We Do*, 33.
63. Pheng Cheah offers a critical and very useful discussion of how biopower has produced and changed in the international division of labor. See Cheah, "Biopower," 179–212.
64. Bauman, "Reconnaissance Wars," 81–90.
65. Bauman, "Reconnaissance Wars," 81–90.
66. Horn, *Bees in America*, 8.
67. Malabou argues that contemporary capitalism "rests on a delocalization and a reticular suppleness in the structures of command." One could make a similar argument regarding the organization and deployment of war, which has become increasingly delocalized and reticular, shifts made possible by arguments about the war on terror as a new type of war that requires novel techniques and technologies of violence that work through distance and decentralization, including drones and nanotechnologies. See Malabou, *What Should We Do*, 33. It is now commonplace for critics to observe that the war on terror has been described as a new war. One of the earlier arguments to this effect is made by Bauman, *Society under Siege*, esp. ch. 3.
68. See [www.cnn.com/2012/09/05/opinion/bergen-obama-drone/index.html](http://www.cnn.com/2012/09/05/opinion/bergen-obama-drone/index.html).
69. On research and bee training, see Kosek, "Ecologies of Empire," and Lockwood, *Six-Legged Soldiers*.
70. On the biologization of politics and the politicization of biology, see Rabinow and Rose, "Biopower Today," 195–217; Rose, *Politics of Life Itself*.
71. On the vitalist character that Foucault ascribes to biopower and biopolitics, see Rose, "Politics of Life Itself," 1.
72. This claim has been placed into doubt especially through Europe's colonies, where sovereign command, violence, and death were ongoing and also continue to persist, albeit in different ways. See esp. Mbembe, "Necropolitics," 11–40.
73. Foucault, *Security, Territory, Population*, 1.
74. See, e.g., Stoler, *Race and the Education*.
75. Esposito, *Bios*, 44.
76. Esposito, *Bios*, 44.
77. For colonial engagements with Foucault and biopolitics, see Mbembe, "Necropolitics," 11–40; Mawani, *Colonial Proximities*, esp. the introduction; Stoler, *Race and the Education of Desire*.
78. Mbembe, "Necropolitics," 11–40. See also Braun, "Biopolitics," 6–28.
79. Again, notable exceptions are Chen, *Animacies*, and Shukin, *Animal Capital*.
80. See Agamben, *Homo Sacer*.
81. "Man-as species" comes from Foucault, "Society Must be Defended," 242. Esposito has been one of Foucault's sharpest critics, yet he does not extend the question of life beyond the human. See Esposito, *Bios*.
82. Not writing specifically about biopolitics or plasticity, Thacker, *After Life*, advances a similar challenge by arguing for a philosophy of life through the nonhuman and unhuman.
83. Massumi, "National Enterprise Emergency," 154.
84. Massumi, "National Enterprise Emergency," 154.
85. Foucault, *Birth of Biopolitics*, 261.
86. Massumi, "National Enterprise Emergency," 155.
87. Massumi, "National Enterprise Emergency," 168.
88. Massumi, "National Enterprise Emergency," 168.
89. Foucault, "Society Must be Defended," 245.
90. Foucault, "Society Must be Defended," 245.
91. The most famous of these critics is Stoler, *Race and the Education of Desire*.
92. On colonial categorization, see Pratt, *Imperial Eyes*.
93. Fanon, *Wretched of the Earth*, 250; emphasis in original.
94. Foucault, *History of Sexuality*, 103.



95. See Hussain, "Beyond Norm and Exception," 734–53.
96. Bauman, "Reconnaissance Wars."
97. Mbembe, "Necropolitics," 32.
98. Massumi, "National Enterprise Emergency," 156.
99. Shaw, Graham, and Akhter, "Unbearable Humanness," 1–20.
100. US Army, *Eyes of the Army*, 11.
101. Foucault, "Confession of the Flesh," 194.
102. In an interesting essay, Eugene Thacker argues that one of the "primary challenges" to biopolitics is "how to acknowledge the fundamentally unhuman qualities of life as circulation, flux, and flow, while also providing the conditions for its being governed and managed." Here, Thacker argues that biopolitics is not simply about the governance of bodies as individuals and aggregates but as "vital forces" that are "at once 'above' and 'below' the scale of the human." Thacker's project coincides with my concerns here except that he draws his inspiration on vitality and life from Aristotle's *psyche*. By contrast, my interest in vitality, as I mentioned earlier and discuss in the following section, is drawn from the philosophy of Bergson, who offers a sustained critique of Aristotle for his failure to consider time and for his linear and successive approach to evolution. See Thacker, "Shadows of Aetheology," 134–52. All of the quotes above are from 136. For Bergson's critique of Aristotle, see *Creative Evolution*, esp. 149.
103. Malabou, *Future of Hegel*, 8.
104. Malabou, *Plasticity at the Dusk*, 21.
105. Malabou, *Plasticity at the Dusk*, 78.
106. Malabou, *What Should We Do*, 17.
107. Malabou, *What Should We Do*, 68; emphasis in original.
108. Malabou, *What Should We Do*, 7–8.
109. Malabou sees plasticity as resistance and explosion. While she describes plasticity as resistance to flexibility, she also describes it as "energetic discharges, creative bursts that progressively transform nature into freedom." See Malabou, *What Should We Do*, 68, 74.
110. Although Malabou is critical of Bergson's formulation of the brain, she does acknowledge his influence on her formulations of plasticity. See Malabou, *What Should We Do*, 72.
111. Bergson, *Creative Evolution*, 23.
112. Bergson, *Creative Evolution*, 23.
113. Bergson, *Creative Evolution*, 24.
114. Bergson, *Creative Evolution*, 29n.
115. Bergson, *Creative Evolution*, 106.
116. Bergson, *Creative Evolution*, 136.
117. Bergson, *Creative Evolution*, 136.
118. Bergson, *Creative Evolution*, 146.

119. Bergson, *Creative Evolution*, 149.
120. Bergson, *Creative Evolution*, 142.
121. Bergson, *Creative Evolution*, 142.
122. Malabou, *What Should We Do*, 78.
123. Jane Bennett offers compelling reasons for anthropomorphizing that have nothing to do with rights. See Bennett, *Vibrant Matter*.
124. Malabou, *What Should We Do*, 80.
125. Bergson, *Creative Evolution*, xiii.
126. Bergson, *Creative Evolution*, xiii.
127. Raffles, *Insectopedia*, 203–4.