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Capitalism in the Web of Life
Ecology and the Accumulation
of Capital

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VERSO

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INTRODUCTION

The Double Internality: History as if Nature Matters

We must recognize in materialism the enthusiastic effort to transcend the dualism which postulates two different worlds as equally substantial and true, [and] to nullify this tearing asunder of what is originally One. (Hegel, 1971)

The human prospect in the twenty-first century is not an altogether happy one. From the outset, our future can be specified at two levels of abstraction. The first is humanity-in-nature. Human engagement with the rest of nature has, over the past decade, reached the point “where abrupt global environmental change can no longer be excluded.”¹ The second is capitalism-in-nature. The unfolding crisis of neoliberal capitalism—now in between the *signal* crisis of 2008 and the unpredictable but inevitable onset of terminal crisis—suggests we may be seeing something very different from the familiar pattern. That pattern is one in which new technologies and new organizations of power and production emerged after great systemic crises, and resolved the older crises by putting nature to work in powerful new ways. The neoliberal revolution after the 1970s is only the most recent example. Today, however, it is increasingly difficult to get nature—including human nature—to yield its “free gifts” on the cheap. This indicates we may be experiencing not merely a transition from one phase of capitalism to another, but something more epochal: the breakdown of the strategies and relations that have sustained capital accumulation over the past five centuries. *Capitalism in the Web of Life* is about how the mosaic of relations that we call capitalism work *through* nature; and how nature works *through* that more limited zone, capitalism. This double movement—of capitalism through nature, of nature through capitalism—is what I call the “Double Internality.”

Since 2008, the flood of instability and change manifest in the allegedly separate domains of “Nature” and “Society” has become impossible to ignore. This poses problems—often unrecognized—of conceptual language, with the proliferation of crisis language (energy, finance, employment, austerity, climate, food, etc.) creating more, rather than less, uncertainty about the present historical moment. For critical scholars, the rush of world events has overwhelmed many. No new synthesis—*yet*—has emerged. Instead, a broad consensus has taken

¹ J. Rockström et al., “Planetary Boundaries,” *Ecology and Society* 14, no. 2 (2009).

shape. The turbulence of the twenty-first century derives from “converging crises.”² This convergence’s most salient expression is the “triple crisis” of food, energy, and finance.³ While many prefer a different, or longer, list of crisis categories—surely climate must be included!—the import of environmental factors, conditions, and relations has registered in critical political economy as never before. This is an advance over the crisis discourse of the 1970s, when political ecology and political economy rarely overlapped. The converging crises argument is the highest stage of “Green Arithmetic”: political economy plus Nature equals converging crises.

Or does it? My sense of Green Arithmetic is that it appears to work because we assume Society plus Nature add up. But does this assumption hold up under closer examination? *Capitalism in the Web of Life* opens an alternative path. I argue that “Society” and “Nature” are part of the problem, intellectually and politically; the binary Nature/Society is directly implicated in the colossal violence, inequality, and oppression of the modern world; and that the view of Nature as external is a fundamental condition of capital accumulation. Efforts to transcend capitalism in any egalitarian and broadly sustainable fashion will be stymied so long as the political imagination is captive to capitalism’s either/or organization of reality. And relatedly, efforts to discern the limits of capitalism today—such discernment is crucial to any anti-systemic strategy—cannot advance much further by encasing reality in dualisms that are immanent to capitalist development.

Green Arithmetic and its language of converging crises does more than misrecognize nature and capitalism. It is unable to grasp the specific working-out of the present turning point. “The economy” and “the environment” are not independent of each other. Capitalism is not an economic system; it is not a social system; it is *a way of organizing nature*.

We can begin with a guiding distinction about this phrase: “a way of organizing nature.” Capitalism’s governing conceit is that it may do with Nature as it pleases, that Nature is external and may be coded, quantified, and rationalized to serve economic growth, social development, or some other higher good. This is capitalism *as a project*. The reality—the *historical process*—is radically different. While the manifold projects of capital, empire, and science are busy making Nature with a capital ‘N’—external, controllable, reducible—the web of life is busy shuffling about the biological and geological conditions

² Cf. S. George, “Converging Crises,” *Globalizations* 7, no. 1–2 (2010): 17–22; J.B. Foster, “Marx and the Rift in the Universal Metabolism of Nature,” *Monthly Review* 65, no. 7 (2013): 1–19.

³ P. McMichael, “The Land Grab and Corporate Food Regime Restructuring,” *Journal of Peasant Studies* 39, nos. 3–4 (2012): 681–701

of capitalism’s process. The “web of life” is nature as a whole: *nature* with an emphatically lowercase *n*. This is nature as us, as inside us, as around us. It is nature as a flow of flows. Put simply, humans make environments and environments make humans—and human organization.

There is no widely accepted term for the process through which civilizations, themselves forces of nature, are caught up in the co-production of life. And so Green thinkers, even those who pioneered new ways of seeing and thinking humanity’s place in nature, have tended to default to an older vocabulary: Society with a capital ‘S.’⁴ This is observation more than critique: we are products of our times. And those times are today different, different even from two decades ago. A new paradigm is now possible—it is breaking out all over, especially among younger scholars. I will call that new paradigm *world-ecology*. This book is a contribution to it, though far from an encompassing definition. World-ecology— or whatever name we end up attaching to this paradigm—is not only intellectually, but politically, necessary if we are to meet the challenges of the twenty-first century.

World-ecology makes one old argument, and one new one. On the one hand, the new paradigm unfolds from a rich mosaic of relational thinking about capitalism, nature, power, and history. On the other hand, world-ecology says that the relationality of nature implies a new method that grasps humanity-in-nature as a world-historical process. In this respect, Capra’s insistence that the world’s crises—debt, biodiversity, poverty, climate—are unified through a “crisis of perception” is correct.⁵ But we can take this insistence further. Modernity’s structures of knowledge, its dominant relations of power, re/production, and wealth, its patterns of environment-making: these form an organic whole. Power, production, and perception entwine; they cannot be disentangled because they are unified, albeit unevenly and in evolving fashion. World-ecology asks us to put our post-Cartesian worldview to work on the crucible of world-historical transformation—understood not as history from above but as the fundamental co-production of earth-moving, idea-making, and power-creating across the geographical layers of human experience. Our task is to see how these moments fit together, and how their combinations change, quantitatively and qualitatively. From this perspective, I ask the reader to consider capitalism as a *world-ecology*, joining the accumulation of capital, the pursuit of power, and the co-production of nature in dialectical unity. Far from asserting the unfettered

⁴ Cf. D. Harvey, “The Nature of Environment,” in *Socialist Register 1993*, (1993), 1–51; F. Capra, *The Turning Point* (New York: Bantam, 1982); C. Merchant, *The Death of Nature* (New York: Harper & Row, 1980).

⁵ F. Capra, *The Web of Life* (New York: Anchor, 1996), 4.

primacy of capitalism's capacity to remake planetary natures, capitalism as world-ecology opens up a way of understanding capitalism as already co-produced by manifold species, extending even to our planet's geo-biological shifts, relations, and cycles.

The crisis today is therefore not multiple but singular and manifold. It is a not a crisis of capitalism *and* nature but of modernity-*in*-nature. That modernity is a capitalist world-ecology. Rather than collapse distinctions—the danger of Green holism—this perspective allows for the multiplication of questions that turn on the *oikeios*: the creative, generative, and multi-layered relation of species and environment. The *oikeios* names the relation through which humans act—and are acted upon by the whole of nature—in our environment-making. Through the *oikeios*, premised on the dialectic of life-making, we may open new pathways for investigating how capitalism's historical geographies—past and present—are premised on specific configurations of humanity-in-nature. Such a perspective allows us to move beyond the “What?” and the “Why?” of today's crises and towards a deeper understanding of *how* the crisis is likely to unfold in coming decades.

Key to realizing such a deeper understanding is developing a language, a method, and a narrative strategy that puts the *oikeios* at the center. Although the challenge cannot be reduced to conceptual language, neither can we make headway without confronting the problem of language. We must “name the system,” to borrow a phrase from the generation of Sixties radicals. If naming can be a first step to seeing, it is also more than a discursive act. In the circumstances of civilizational crisis, as the old structures of knowledge come unraveled without yet being interred, the imperative and the power of fresh conceptual language can become a “material force,” as Marx might say.⁶ Radicals have been good at this for a long time. The languages of gendered and racial domination have been significantly discredited, if as yet inadequately transcended. But I think the violence of the Nature/Society dualism has been given a pass. By this I mean something different from the Green critique of capitalism's “war on the earth.”⁷ Rather, I am arguing that the dualism of Nature/Society—with a capital ‘N’ and a capital ‘S’—is complicit in the violence of modernity at its core. Just as we have been learning to move beyond the dualisms of race, gender, sexuality, and Eurocentrism over the past four decades, it is now time to deal with the source of them all: the Nature/Society binary. For this dualism drips with blood and dirt, from its sixteenth-century origins to capitalism in its twilight, every bit as much as the others. Perhaps even more.

6 K. Marx, *Critique of Hegel's 'Philosophy of Right'* (Cambridge, UK: Cambridge University Press, 1970 [1843]), 137.

7 J.B. Foster, B. Clark, and R. York, *The Ecological Rift* (New York: Monthly Review Press, 2010).

If the politics of the present conjuncture demand a new vocabulary, the problems run much deeper. The old language—Nature/Society—has become obsolete. Reality has overwhelmed the binary's capacity to help us track the real changes unfolding, accelerating, amplifying before our eyes. And yet, a new language—one that comprehends the irreducibly dialectical relation between human and extra-human natures in the web of life—has yet to emerge. Not for want of trying, I know: cyborgs, assemblages, networks, hybrids, and many more have been offered as a way forward. They *have* pointed the way forward. They have not, however, directly challenged the dualist framing of world history. For those concerned about the earth, its people, and the web of life, the great patterns and processes of modern world history have remained firmly engaged within the prison house of the Cartesian binary. No theoretical critique will open the cage. Such opening requires that we build an alternative to the logic of dualism, and this requires new methodological procedures, narrative strategies, and conceptual language *all at the same time*.

The Cartesian narrative unfolds like this. Capitalism—or if one prefers, modernity or industrial civilization—emerged *out of* Nature. It drew wealth *from* Nature. It disrupted, degraded, or defiled *Nature*. And now, or sometime very soon, Nature will exact its revenge. Catastrophe is coming. Collapse is on the horizon.

How we tell stories of our past, and how we respond to the challenges of the present, are intimately connected. For many environmentalists and Green scholars, the separation of humanity and nature has encouraged a way of thinking about history that privileges what humanity *does to* nature. This way of thinking lends itself quite readily to the catastrophist and collapse narratives that have gained such traction in Green Thought, and among wider scholarly and popular audiences.⁸ An alternative begins neither with “humans” nor with “nature” but with the *relations* that co-produce manifold configurations of humanity-in-nature, organisms and environments, life and land, water and air. “History,” in this sense, is the history of a “double internality”: humanity-in-nature/nature-in-humanity. (And yes, there is a longer history of earth and all the rest that precedes humans.) In this double internality, everything that humans do is *already* joined with extra-human nature *and* the web of life: nature as a whole that includes humans.

This argument is—and at the same time is not—a commonplace. *Capitalism in the Web of Life* builds on the groundbreaking contributions of what I will call Green Thought (an imprudent but necessary generalization). Green Thought, broadly conceived, is that diverse tradition in the humanities and

8 Cf. J. Diamond, *Collapse* (New York: Viking, 2004).

social sciences concerned with environmental change, past and present. It comprises some elements of the physical sciences, especially those scholars concerned with planetary change.⁹ This book highlights three of Green Thought's defining features: the reduction of humanity to a unified actor; the reduction of market, production, political, and cultural relations to "social" relations; and the conceptualization of Nature as independent of humans, even when the evidence suggests the contrary.

Today, more than forty years after the first Earth Day, there is broad agreement among many environmentally oriented scholars, and most environmentalists, that humans are a part of nature. This is the perspective of humanity-in-nature. What to do with this awareness has been a vexing problem. It is one thing to say that humans are natural forces, and quite another to say that human organizations—families, empires, corporations, markets, and all the rest—are natural forces. Green Thought has embraced the former and resisted the latter. To say that humans are a part of nature feels good. To say that human organization is a part of nature feels wrong to most environmentalists, inside and outside the universities. For critical scholars—Red, Green, and many blends in between—the consensus is clear: capitalism acts upon a nature that operates independently of humanity. (And vice versa.) For a broader public concerned about climate and sustainability, a cognate consensus now reigns: humanity makes a "footprint" on the earth, which must be reduced.

Is the image of nature as passive mud and dirt—a place where one leaves a footprint—really the best metaphor to capture the vitality of the web of life? I think we can do better. This book tries to show that the hardened dualism of Nature/Society is not the only possible distinction. It is not even the best. To say that humans are a part of nature is to highlight the *specificity* of humanity within the web of life—its specific forms of *sociality*,¹⁰ its capacities for collective memory and symbolic production, and much more.

It has been a rocky road indeed to travel from humanity-in-nature to capitalism-*in-nature*. Does not such a journey deprive us of our ability to distinguish between "good" and "bad" human interactions with the rest of nature? Does it not leave us powerless to explain the specifically human, and the specifically natural, in the contemporary plunge into global crisis?

9 Cf. W. Steffen, P.J. Crutzen and J.R. McNeill, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" *Ambio* 36, no. 8 (2007): 614–21.

10 We may "distinguish between 'sociality' and 'society'. The latter, as contrasted with the 'sensuous' (sensible) immediateness of the particular individuals, is an abstraction: to grasp it one must transcend this immediateness of the individuals. 'Sociality', however, is actually inherent in every single individual. This is why a society may never be justifiably called 'natural', whereas sociality is rightly defined as man's second nature." (I. Mészáros, *Marx's Theory of Alienation* [London: Merlin Press, 1970], 175).

I do not think so. This book is an effort to explain why. And it is an attempt to show that a view of humanity as natural force allows us to see new connections between human nature, global power and production, and the web of life. In an era of tightly linked transformations of energy, climate, food and agriculture, labor markets, urbanization, financialization, and resource extraction, the imperative is to grasp the inner connections that conduct flows of power, capital, and energy through the grid of capital accumulation—and in so doing, to shed new light on the limits of that very grid.

So the question bears repeating: If not Nature/Society, then *what*? The alternative, long outlined by Green Thought but rarely (*rarely*) practiced, inverts the Cartesian privileging of substances over relations. Instead of a contemporary world produced by two discrete, interacting, substances—Society and Nature—we might instead look at the history of modernity as co-produced, *all the way down and through*. One substance, Humanity, does not co-produce historical change with another substance, Nature. Rather, the species-specificity of humans is already co-produced within the web of life. Everything that humans do is a flow of flows, in which the rest of nature is always moving through us. The forms of sociality that we evolve reflect a species-specificity that is unusually plastic. In this, "consciousness" is not outside but inside. Consciousness itself is a "state of matter."¹¹ The stories of human organization are co-produced by *bundles* of human and extra-human nature. Humans build empires on their own as much as beavers build dams on their own. Both are "ecosystem engineers."¹² Neither exists in a vacuum.

To "bundle," however, does not carry us nearly far enough. Even this metaphor inadequately grasps the intimacy, porosity, and permeability of humans and human organizations within the web of life. Absent a conceptual vocabulary that names the relations—rather than the end-points of Nature/Society—we will tend to default to a binary that reasserts the independence of human and extra-human natures. We must have a way of naming—and building the conversation through—the relation of life-making. In this relation, species make environments, and environments make species. It is a relation open to inorganic phenomena as well: plate tectonics, orbital variation, meteors, and much more "make" environments too. So we begin with an open conception of life-making, one that views the boundaries of the organic and inorganic as ever-shifting.¹³ It is a multi-layered relation

11 M. Tegmark, "Consciousness as a State of Matter," *arXiv* 1401, no. 1219v2 (2014).

12 J. Wright and C. Jones, "The Concept of Organisms as Ecosystem Engineers Ten Years On," *BioScience* 56, no. 3 (2006): 203–9.

13 C. Birch, and J.B. Cobb, *The Liberation of Life* (Cambridge: Cambridge University

through which there are no basic units, only webs within webs of relations: “worlds within worlds.”¹⁴

THE *OIKEIOS*: TOWARDS ENVIRONMENT-MAKING

Capitalism in the Web of Life takes flight by naming this relation of life-making: the *oikeios*. From this relation—as much methodological orientation as ontological claim—we can see manifold species-environment configurations emerge, evolve, and ultimately become something else entirely. In what follows, ecology, nature, and all manner of cognate phrases derive from the *oikeios*. To be clear, the *oikeios* is a relation that includes humans, and one through which human organization evolves, adapts, and transforms. Human organization is at once product and producer of the *oikeios*: it is the shifting configuration of this relation that merits our attention. In this spirit I understand “capital” and “capitalism” as producers and products of the *oikeios*. Capitalism as *world-ecology* is therefore not the ecology of the world, but a patterned history of power, capital, and nature, dialectically joined.¹⁵

As we see in Chapter One, the concept of the *oikeios* goes back to Theophrastus. My usage extends the concept, drawing on trailblazing insights, from scholars

14 R.E. Ley et al., “Worlds within Worlds: Evolution of the Vertebrate Gut Microbiota,” *Nature Reviews Microbiology* 6, no.10 (2008): 776–88.

15 The original formulation of capitalism as world-ecology dates back more than a decade (Moore, “Capitalism as World-Ecology,” 2003), but the present argument is possible only because the world-ecology perspective has taken on a life of its own. The contributions of this book have been facilitated by a community of world-ecology scholars whose distinctive elaborations, powerful insights, and comradely encouragements have given this book a richness that would have been otherwise impossible: G. Avallone, “Tra finanziarizzazione e processi ecologici,” *Sociologia Urbana e Rurale*, no. 101 (2013): 85–99; S. Deckard, “Mapping the World-Ecology,” *Ecologies Technics and Civilizations*, (forthcoming); M. Niblett, “World-Economy, World-Ecology, World Literature,” *Green Letters*, 16, no. 1 (2012): 15–30; C.R. Cox, *Synthesizing the Vertical and the Horizontal: A World-Ecological Analysis of ‘the’ Industrial Revolution* (M.Sc. thesis, Portland State University, 2014); A.G. Jakes, *State of the Field: Agrarian Transformation, Colonial Rule, and the Politics of Material Wealth in Egypt, 1882–1914* (PhD Diss., New York University, 2015); B. Marley, “The Coal Crisis in Appalachia: Agrarian Transformation, Commodity Frontiers, and the Geographies of Capital,” *Journal of Agrarian Change* (2015, early view); Roberto José Ortiz, “Latin American Agro-Industrialization, Petrodollar Recycling, and the Transformation of World Capitalism in the Long 1970s,” *Critical Sociology* (2014) online first; C. Parenti, “Environment Making State,” *Antipode* (early view); Tony Weis, *The Ecological Hoofprint: The Global Burden of Industrial Livestock* (London: Zed, 2013).

across the Two Cultures, on dialectical method.¹⁶ Naming the relation through which the mosaic of species-environment configurations form and re-form—above all those swirling around (and within) humanity—is indispensable. To go forward without naming the relation is to end up where we began: re-labeling Society and Nature as human and extra-human nature.

The *oikeios* lets us ask two important questions from the beginning. Both invert Green Thought’s most basic questions: How did humanity become separated from nature? And how do humans disrupt nature, causing environmental degradation? (And eventually, crisis?) From the perspective of the *oikeios*, we are led to very different questions. First, how is humanity *unified* with the rest of nature within the web of life? Second, how is human history a *co-produced* history, through which humans have put nature to work—including other humans—in accumulating wealth and power?

The first question—how is humanity *unified* with and within nature?—encourages us to ask how specific human organizations are premised on internal variation realized through the web of life. There is a widespread conviction among critical scholars that Nature/Society is the best way to highlight the specificity of “social” relations. Holism seems to obscure this. But holism only obscures specificity when severed from a dialectical method. Dualism is a blunt instrument for discerning specificity. The most elementary forms of differentiation—let us say, class, race, and gender, although this hardly exhausts matters—unfold as bundles of human and extra-human natures, interweaving biophysical and symbolic natures at every scale. The relations of class, race, and gender unfold through the *oikeios*; they are irreducible to the aggregation of their so-called social and ecological dimensions. And if I have framed the point through the *oikeios*—which permits an alternate way of seeing differentiation—the elements of the argument have been with us for a long time. Modern class relations emerge through early capitalism’s primitive accumulation—an audacious movement of environment-making if there ever was one. Modern gender relations were forged through this same process of capitalist agrarian transformation—on both sides of the Atlantic—and symbolically encoded, not least through the era’s successive scientific revolutions.¹⁷ Modern racism was born of the transatlantic slave trade, the human pivot of the sugar commodity frontier: among the era’s decisive motors of capital accumulation and greatest commodity-centered force for landscape transformation that humanity had ever seen.¹⁸

16 Cf. B. Ollman, *Alienation* (Cambridge: Cambridge University Press, 1971); R. Levins and R. Lewontin, *The Dialectical Biologist* (Cambridge, MA: Harvard University Press, 1985).

17 Cf. Merchant, *The Death of Nature* (1980).

18 Moore, “Ecology and the Rise of Capitalism,” Ph.D. dissertation (Department of Geography, University of California, Berkeley, 2007).

I write these words because some may be tempted to read this argument as another case of *big history* and *big theory*. In my view, there is no such thing as big history or big theory, only history and theory that informs our knowledge of historical-geographical patterns. These may be patterns that obtain over large and small space, long or short *durées*. Patterns of class, race, and gender—and of course, others—can be made more sensible through a method that seeks to pinpoint the rules and patterns of reproducing power and wealth, production and reproduction, in specific historical systems . . . and specific historical natures. (Such systems are, to be sure, multi-layered and uneven.) And if these rules have often been called structural, I prefer a different metaphor: civilizations as “coral reefs of human existence,” but not only of human existence.¹⁹ Their physical structures, ways of seeing, and methods of producing are born of trillions of creatures reproducing daily and intergenerational life.

My focus in this book is trained upon capitalist civilization—a co-produced world-ecology of capital, power, and nature. And if the capitalist world-ecology “as a whole” is more than the sum of its parts, it is also surely less. One cannot do everything at once. Whatever insights I have gained stem from a world-ecology perspective—pivoting the *oikeios*—that has allowed me to grapple with the problem of capital accumulation and the transformation of the earth in new ways.

The *oikeios* enables—but on its own does not accomplish—a theory of capital accumulation in the web of life. For me, the *oikeios* is compelling because it allows me to name the relational process implicit in two of the most frequently quoted passages in geographical thought since the 1970s. The first is that capital incessantly drives towards the “annihilation of space by time.”²⁰ Capital seeks to create a world in which the speed of capital flows—its turnover time—constantly accelerates. The privileging of time over space in capital’s project is not passive but active: every effort to accelerate turnover time implies a simultaneous restructuring of space. The second is Lefebvre’s powerful observation that capital not only occupies, but also *produces*, space.²¹ Space is not incidental; the accumulation of capital *is* the production of space. Accumulation crises do not only produce spatial restructuring after the fact; they are, *in themselves*, products and producers of spatial configurations whose contradictions have reached a boiling point. From these two observations, the signal contribution of nearly a half-century of radical geographical thought goes something like this: all social relations

19 I. Wallerstein, *The Modern World-System I* (New York: Academic Press, 1974), 3.

20 K. Marx, *Grundrisse: Introduction to the Critique of Political Economy*, trans. M. Nicolaus (New York: Vintage, 1973), 424.

21 H. Lefebvre, *The Production of Space*, trans. D. Nicholson-Smith (Oxford: Blackwell, 1991).

are spatial relations; social relations develop through, and actively co-produce, space; spatial configurations are always in motion, but are also “fixed” for definite periods of time. Space is, then, not simply “out there” but joins in specific complexes of social relations and “built environments” that shape the possibilities for contingency, but not infinitely so.²²

When geographers say *space*, may we not also say *nature*? All social relations are spatial relations, relations within the web of life. Socio-spatial relations develop through nature. All species “build” environments—they are “ecosystem engineers.” But some engineers are more powerful than others. Humans have been especially powerful. This is not simply because of thought and language—which are of course central—but also because hominid evolution favored distinctive extroversions: a smaller digestive system and the use of fire as an external stomach; a narrower birth canal and community as external womb; less hair and the production of clothing and shelter as external fur. That list could be extended. The point is to highlight the ways in which evolutionary processes were powerfully co-produced: humanity is a species-environment relation.

It is, clearly, also historical. Capitalism’s dynamism owes much to a specific, and absurd, way of dealing with this relation: by severing it symbolically, and then acting accordingly. (Thus, what was “natural” became a crucible of legitimation.) This specific and absurd mode of environment-making is revealed in today’s biocidal wreckage. For five centuries it has served to liberate, then fetter, then restructure and renew capital accumulation. The attendant accumulation crises have been cyclical—making possible contingent outcomes through crisis—but also cumulative. Importantly, the cumulative trend shapes the possibilities for the cyclical resolution of accumulation crises: a point underscored by contemporary resource depletion and the accumulation of greenhouse gases in the atmosphere.

Like many readers, I suspect, I have little patience with grand theory. No one theory can answer the questions I pose in this book. Only a relational method and made of theorizing will suffice. My intention is to elaborate a method that carries the core insights of Marxism and environmental historiography into a new synthesis. This synthesis says that environment-making is much more than a story of environmental consequences. It is a story of how power and re/production in its quotidian, civilizational, and commercial forms are, *already*, environmental history. Power and production—and so much more—are “environmental.” This allows us to move from environmental histories of modernity

22 D. Harvey, *The Limits to Capital* (Chicago: University of Chicago Press, 1982); M. Storper and R. Walker, *The Capitalist Imperative* (New York: Basil Blackwell, 1989); N. Smith, *Uneven Development* (Oxford: Basil Blackwell, 1984); E. Soja, *Postmodern Geographies* (London: Verso, 1983).

to modernity's projects and processes as environmental history—as environment-making processes. My point of departure therefore privileges the patterned and the specific. Specificities emerge within world-historical patterns, what I call *historical natures*²³—even and especially when the topic seems removed from these concerns (e.g. labor, financialization).

Dualism does not allow for greater specificity in our understanding of “social” relations for a very good reason: it takes human differentiation as forming outside the *oikeios*. This comprises not only the accumulation of capital but also enduring patterns of class, gender, race, and nation. Are these not better understood as products and producers of the *oikeios*? From here we may ask, How do humans *fit* into the web of life, understood as a totality of distinctive and interpenetrating evolutionary trajectories? And how are the cycles and trends of human organization subjected to recurrent moments of chaos and restabilization? For me, the implications of privileging the differentiated unities of humanity-in-nature/nature-in-humanity have made it impossible to go back to the dualist view. Rather than separate humans from nature, capitalist civilization has enmeshed individual life-activity into a web of life whose interconnections are much denser, more geographically expansive, and more intimate than ever before. And far from being a recent development, the processes that have turned our breakfasts, our cars, and our working days into world-historical activity find their origins in the “long” sixteenth century (1451–1648).

The unity of humans with the rest of nature gets us part of the way towards a world-ecological reading of human history. And yet, this kind of philosophical statement—humans are a part of nature, and so on—has been around for a long time. The *oikeios* is offered as a bridge between philosophical claim and historical method. The bridge works by inverting the premise of most environmental thought in the humanities and social sciences. Rather than presume humanity's separation, in the recent or distant past, the *oikeios* presumes that humanity has always been unified with the rest of nature in a flow of flows. What changes are the ways in which specific aspects of humanity, such as civilizations, “fit” within nature.

In this book, nature assumes three major forms: human organization; extra-human flows, relations, and substances; and the web of life. These are not independent; rather, they are interpenetrating, and their boundaries and configurations shift in successive historical-geographical eras. This last is pivotal: nature is not “just there.” It is *historical*. This way of seeing leads us to a second major inversion. Instead of asking what capitalism *does to* nature, we may begin to ask how nature *works for* capitalism? If the former question implies

separation, the latter implicates unification: capitalism-in-nature/nature-in-capitalism. It allows us to grapple with a new set of relations, hitherto obscured by the dualism of Nature/Society.

How is nature's work/energy transformed into value? This is the crux of the problem faced by capitalism today. The question shifts our thinking away from too much of one thing (humans, or capitalism) and too little of another thing (Nature), and towards the *longue durée* relations and strategies that have allowed capitalism-in-nature to survive. And capitalism has survived not by destroying nature (whatever this might mean), but through projects that compel nature-as-*oikeios* to work harder and harder—for free, or at a very low cost. Today, it is becoming increasingly difficult to get nature—of any kind—to work harder. Inverting the problem of degradation shifts our initial premise from working *on* to working *through* nature. (And, in turn, to being worked *through* by the web of life.) This opens a new set of questions about how this limit—the limit of putting nature to work—may be a fundamental barrier to capital accumulation in the twenty-first century.

These inversions—of humanity-in-nature, of nature working for capitalism—are dialectical, not mechanical. Hence, the double internality. Capitalism does, of course, impose real and violent transformations on planetary life. But the unilateral model—doing *to* rather than acting *through*—cannot get us where we need to go. It cannot move us towards a deeper, *and more practical*, understanding of capitalism's manifold crisis today. These two inversions open a new vista through which we can explore and reconstruct how capitalism produces new conditions for its recurrent booms, and through which the contradictions that follow have been resolved. By situating these dynamics within the *longue durée* of historical capitalism, we can throw into sharp relief the relation between cyclical movements (phases of capitalism) and the accumulation of socio-ecological contradictions in life, capital, and power over the past five centuries.

Taking the double internality of human organization as our guiding thread, we can begin to reconstruct narratives of two *simultaneous* movements. The first is capitalism's internalization of planetary life and processes, through which new life activity is continually brought into the orbit of capital and capitalist power. The second is the biosphere's internalization of capitalism, through which human-initiated projects and processes influence and shape the web of life. This guiding thread—framed as a double internality—allows us to move beyond a kind of “soft” dualism that re-presents the dialectic of human and extra-human natures as an alternative to Nature/Society.

My focus in this book is capitalism as project and process: the logic of capital and the history of capitalism. This capitalism is not, as we have seen, a narrow set of economic or social relations, since these categories are part of

23 Following Marx and Engels; *The German Ideology* (New York: International Publishers, 1970), 41.

the problem. Capitalism is, rather, best understood as a *world-ecology* of capital, power, and re/production in the web of life. The point of view of capitalism as a whole—and the decisive conditions and contradictions of the accumulation process—is but one possible vantage point. Without a world-historical reconstruction, however, the critique of Nature/Society dualism will remain theoretical when it needs to be methodological and *historical*. My central thesis is that capitalism is historically coherent—if “vast but weak”—from the long sixteenth century; co-produced by human and extra-human natures in the web of life; and cohered by a “law of value” that is a “law” of Cheap Nature. At the core of this law is the ongoing, radically expansive, and relentlessly innovative quest to turn the work/energy of the biosphere into capital (value-in-motion).

The concept of work/energy looms large in this argument. It allows us to pierce the Cartesian fog that surrounds the unity of human and extra-human work.²⁴ Marx’s observation that large-scale industry is a mechanism for turning “blood into capital” was no mere polemic. It was a means of highlighting the ways that the capital-relation transforms the work/energy of *all* natures into a frankly weird crystallization of wealth and power: value (Chapter Two).

Work/energy helps us to rethink capitalism as a set of relations through which the “capacity to do work”—by human and extra-human natures—is transformed into value, understood as socially necessary labor-time (abstract social labor). “Work/energy” (or *potential* work/energy) may be capitalized—as in commodified labor-power via the cash nexus—or it may be appropriated via non-economic means, as in the work of a river, waterfall, forest, or some forms of social reproduction. My conceptualization follows White’s view of

energy as the capacity to do work. Work, in turn, is the product of a force acting on a body and the distance the body is moved in the direction of that force. Push a large rock and you are expending energy and doing work; the amount of each depends on how large the rock and how far you push it. The weight and flow of water produce the energy that allows rivers to do the work

24 The origins of this concept and its typography—work/energy—come from Caffentzis, who situates the “energy” and “work” crises of the 1970s within a unified field. Caffentzis’ insight was to link “capital’s control over work across the planet . . . [to] how energy commodities were . . . used to impose once again the control that capital once had over the work process” (G. Caffentzis, *In Letters of Blood and Fire* [Oakland: PM Press, 2013], 2–3). This points strongly in the right direction. My use of work/energy extends it to capitalism’s unified logic of appropriating human and extra-human “work” that is transformed into value.

of moving rock and soil: the greater the volume of water in the river and the steeper the gradient of its bed, the greater its potential energy.²⁵

White’s sketch is focused on the geophysical work/energy implied in the historical geography of a river (the Columbia, in this instance). But work/energy is also about organic life: from photosynthesis to hunting prey to bearing children. What bears emphasis is *how* the work/energy of the web of life is incorporated into the relations of power and re/production. Food—in capitalism as for all civilizations—is a crucial nexus of all these (see Chapter Ten). The work/energy concept allows us to transcend the metabolic fetish of Green materialism, in which living flows are narrowly biophysical, can be disrupted, and can be subsequently repaired to some Edenic, pristine state. The work/energy alternative sees metabolism through the double internality: flows of power and capital in nature, flows of nature in capital and power. In this, the issue is not “metabolic rift” but *metabolic shift* (Chapter Three).

To this conception of work/energy we may add an outline of labor productivity. Labor productivity is understood in terms of the rate of exploitation and the production of surplus value. The usual Marxist model turns on the relation of machinery and labor-power: more powerful machines allow the average worker to produce more average commodities. Many wrinkles have been added to the model: organizational innovation, labor process rationalization, the impact of transportation, information, and communications technologies. Within this model, the rate of exploitation (surplus value production) increases when the average worker produces a rising mass of value (often, a rising physical volume of commodities), so long as wages increase more slowly than productivity. Alternatively, exploitation may advance when the worker produces a static mass of value, so long as wages decrease. Thus, accumulation may advance on the basis of rising wages and rapidly advancing productivity, as during Fordism, or on the basis of falling (or static) wages and very slow productivity growth, as during the neoliberal era. Part of this dynamic is captured in the classic distinction between relative and absolute surplus value. In this, a twentieth century auto plant would embody relative surplus value (rising labor productivity per hour) whereas textile production in the sixteenth century typifies absolute surplus value, in which the production of surplus value was determined by the number of hours worked, not by rising output per hour.

I worry that this distinction between absolute and relative surplus value has too often been hardened into categorical difference. For one, the usual Marxist thinking on the subject presumes early capitalism as static, certainly not a system characterized by the production of relative surplus value. The great advances of

25 D. White, *The Organic Machine* (New York: Hill & Wang) 6

the nineteenth century obscured the *equally* significant advance in labor productivity after 1450 (see Chapters Seven and Eight). My point, however, extends beyond the historical observation. The reason both Reds and Greens see “real” capitalism emerging after 1800 turns on a reluctance to look at how capital, science, and empire appropriated nature—including the unpaid work/energy of humans—in service to surplus value production. In metals and mining, shipbuilding, agriculture, textiles, and many other strategic sectors of early capitalism, labor productivity advanced dramatically through new techniques and procedures of harnessing nature’s bounty. Early capitalism mobilized technical innovation, systemic violence, and symbolic innovation to lengthen the working day *as well as* to produce and appropriate Cheap Nature so as to reduce *de facto* unit labor costs. In such situations—here I think of Norwegian forests or Polish grain or even African slaves—the appropriation of “natural fertility” (Marx) may act like an increase in relative surplus value. Appropriated nature becomes a productive force. If one includes the conquest of the Americas, the direct and indirect implications for labor productivity growth were gigantic. The appropriation of global natures and the accumulation of capital are closely joined through the production of surplus value. From this perspective, we may reasonably ask: Does the ongoing closure of frontiers today signal an exhaustion of capitalism’s Cheap Nature strategy, with its prodigious history of appropriating uncommodified nature as a way to advance labor productivity?

These questions suggest a rethinking of value. Value operates through a dialectic of exploitation and appropriation that illuminates capitalism’s peculiar relation with, and within, nature. The relations of exploitation produce abstract social labor. The relations of appropriation, producing abstract social nature, enabled the expanded accumulation of abstract social labor. On the one hand, the system turns on a weird coding of what is valuable, installing human work within the commodity system as the decisive metric of wealth. This work is usually conceptualized as wage-labor: a term that I will treat expansively, and not limited to the ideo-typical figure of the proletarian.²⁶ In this domain, the exploitation of labor-power is the pivot upon which all else turns. On the other hand, the exploitation of wage-labor works only to the degree that its reproduction costs can be checked. The mistake is to see capitalism as defined by wage-labor, any more than it is defined by the world market. Rather, the crucial question turns on the historical-geographical connections between wage-work and its necessary conditions of expanded reproduction. These conditions depend on massive contributions of unpaid work, outside the commodity

26 We are justifiably cautious in defining the proletarian relation too narrowly. Modern slavery, for instance, was a form that entwined relations of exploitation and appropriation (S. Mintz, “Was the Plantation Slave a Proletarian?” *Review* 2, no. 1 [1978]: 81–98).

system but necessary to its generalization. Sometimes this is called the domain of social reproduction,²⁷ although the adjective “social” here seems especially unsuitable—where does the “social” moment of raising children end, and the “biological” moment begin? Clearly, we are dealing with a zone of reproduction that transcends any neat and tidy separation of sociality and biology, which are better viewed as internal to each other. Neither is this zone of reproduction—the domain where unpaid work is produced for capital—a narrowly human affair. For unpaid work not only makes possible the production of potential—or the reproduction of actual—labor-power as “cheap” labor; it also involves the unpaid work of extra-human natures. In this domain of reproduction, the *appropriation* of unpaid work is central (Chapters Two and Nine).

My use of *appropriation* therefore differs from that of Marx, who deployed the term more or less interchangeably with the exploitation of wage-labor. Appropriation, in what follows, names those extra-economic processes that identify, secure, and channel unpaid work outside the commodity system into the circuit of capital. Scientific, cartographic, and botanical revolutions, broadly conceived, are good examples, themes we explore in Chapter Eight. Movements of appropriation, in this sense, are distinct from movements of the exploitation of wage-labor, whose tendential generalization is premised on the generalization of appropriative practices. So important is the appropriation of unpaid work that the rising rate of exploitation depends upon the fruits of appropriation derived from Cheap Natures, understood primarily as the “Four Cheaps” of labor-power, food, energy, and raw materials.

This Cheap Nature project—appropriating uncaptialized nature as the pedestal of labor productivity—cannot be understood as a narrowly economic process. At the heart of modernity’s co-productions is the incessant reworking of the boundaries between the human and the extra-human. Yes, the distinction between humans and the rest of nature is longstanding. Never before, however, had a civilization organized around a *praxis* of external nature: a world-praxis in which representations, rationality, and empirical investigation found common cause with capital accumulation in creating Nature as external. The boundary setting between what was, and what was not, “natural” was intellectually arbitrary—and often deeply racist and patriarchal. It was not, however, *historically* arbitrary, but patterned strongly on capital’s law of value as a law of Cheap Nature. Consider the tightly bound connection between science and gender across the early modern era;²⁸ the early sixteenth-century debates between Las Casas and Sepúlveda over

27 Cf. I. Bakker and S. Gill, eds., *Power, Production, and Social Reproduction* (New York: Palgrave Macmillan, 2003).

28 Merchant, *The Death of Nature* (1980).

"natural slaves";²⁹ or the colonial designation of indigenous peoples in the later sixteenth-century Andes and elsewhere as *naturales*.³⁰ Of course, early capitalism's boundary-setting procedures were more than representational and ideological; they were also bound up with new modes of knowledge production. Bookended by Copernicus and Newton (c. 1470s-1720s) we see "irreversible and fundamental changes . . . [in] Western regimes for the *discovery, development and diffusion of such knowledge . . . radically transformed in scope and scale.*"³¹

But there was more to this than the accelerating "comprehension of the natural world."³² Such comprehension unfolded within a historical project that aimed at rendering nature external—Nature with a capital 'N'—the better that it could be subordinated and rationalized, its bounty extracted, in service to capital and empire.

As capitalism evolves and restructures, so do the terms of the double internality. Every phase of capitalism has woven together new *and* old strands of the *oikeios*: thus do new historical capitalisms and new historical natures flow together. These historical natures take shape out of modernity's manifold revolutions—scientific, industrial, bourgeois, agricultural, financial, demographic, and all the rest. They unfold through, while creating anew, the *oikeios*.

HISTORICAL NATURE AND THE CARTESIAN REVOLUTION

The *oikeios* points us towards an alternative. Capitalism makes nature. Nature makes capitalism. Both are true, provided we take these as interpenetrated realities in which "capitalism" is co-produced. This is not—emphatically not—the co-production of two separate entities: Humanity and Nature. Capitalism is a co-produced history of human-initiated projects and processes bundled with (and within) specific natures. Historical-geographical specificity is called for at every step. The web of life itself evolves historically. In this, "nature" (and its cognates) is a way of conceptualizing not merely the objects of capitalist activity. For the web of life is more than "taps" and "sinks." It is the field upon which capitalism unfolds. And we can go still further. Nature is no static field,

29 B. Tierney, *The Idea of Natural Rights* (Atlanta: Scholars Press, 1997).

30 Stavig, "Ambiguous Visions," *Hispanic American Historical Review* 80, no. 1 (2000): 77–111.

31 P. O'Brien, "Historical Foundations for a Global Perspective on the Emergence of a Western European Regime for the Discovery, Development and Diffusion of Useful and Reliable Knowledge," *Journal of Global History* 8, no. 1 (2013): 15. Emphasis added.

32 Ibid.

but is itself renewing and evolving in cyclical and cumulative fashion. Nature is, above all, *historical*.

This means two things. First, capitalism does not "produce" nature in a linear fashion, but is an evolving whole that joins the accumulation of capital, the pursuit of power, and the co-production of nature. Second, capitalism is not a structurally invariant, monolithic Society, acting upon a structurally invariant, external Nature. Rather, the history of capitalism is one of successive *historical natures*, which are both producers *and* products of capitalist development. The point is elementary but underappreciated. At a time when no serious critical scholar would undertake a study of neoliberal capitalism by using "production in general,"³³ much of Green Thought continues to embrace a notion of "nature in general." This point may seem far removed from contemporary political questions. I wish to suggest that it is anything but. For the concept of "nature in general" has made it easy for many scholars and activists to embrace the apocalyptic imaginaries of catastrophe and collapse. Absent the specification of historical natures that encompass humanity, nature-in-general has driven Green politics into an "either/or" position: sustainability or collapse.³⁴

Although the distinction between humans and the rest of nature has a long history that predates capitalism, the construct of Nature/Society is thoroughly modern. The notion that social relations (humans without nature) can be analyzed separately from ecological relations (nature without humans) is the ontological counterpoint to the real and concrete separation of the direct producers from the means of production. From this perspective, revolutions in ideas of nature and their allied scientific practices are closely bound to great waves of primitive accumulation, from early modernity's Scientific Revolution to neoliberalism's genomic revolutions (Chapter Eight, "Abstract Social Nature").

I have called this Nature/Society dualism Cartesian. The term *Cartesian* derives from René Descartes' famous argument about the separation of mind and body. I use it to name philosophical and analytical worldviews—and modes of enquiry—that conceptualize society and nature as ontologically discrete. These worldviews emerged during an era of "scientific revolution." We might also call it a Cartesian revolution. This revolution did three major things. It "imposed an ontological status upon entities (substance) as opposed to relationships (that is to say energy, matter, people, ideas and so on became things)." Second, "it imposed . . . a line in which a logic of either/or (rather than both/

33 Marx, *Grundrisse* (1973), 85.

34 Cf. R. Costanza et al. "Sustainability: Call for a Paradigmatic Change." *Ecological Economics* 42 (2002): 1–8.

and) predominated.³⁵ And finally, it strongly favored the “idea of a purposive control over nature through applied science.”³⁶

Descartes hardly stands alone; he represents a broader historical movement towards the dualisms at the core of bourgeois thought. The emergence of Nature—the environment—was a symbolic-material process that began at least a century before Descartes, and continues to this day. One can quibble about names, but Descartes’ biography is instructive: he wrote most of his major works between 1629 and 1649 while living in the Dutch Republic, the “model capitalist nation of the seventeenth century,” and the epicenter of a world-ecological revolution that stretched from Southeast Asia to the north Atlantic.³⁷

The relation between Descartes and Dutch capitalism is worth emphasizing, since new ideas of nature and the material transformations of capitalism are closely joined. The example of Descartes illustrates how different phases of capitalism—as environmental history—entail not only massive deforestation, pollution, food insecurity, and resource exhaustion, but also implicate new ways of seeing the world. Viewed in this light, the systematizing thrust of Descartes’ intellectual endeavors—his concern for the “systematic rationality of the universe”³⁸—can be viewed as both symptomatic of, and contributing to, the seventeenth century’s massive reorganization of power, capital, and nature. If the accumulation of capital is the proletarianization of labor,³⁹ it is also the production of knowledges aimed at controlling, mapping, and quantifying the worlds of commodification and appropriation. For early modern materialism, the point was not only to interpret the world but to control it: “to make ourselves as it were the masters and possessors of nature.”⁴⁰ In the history of capitalism, the “material” and the “symbolic” form an organic whole.

Cartesian dualism is a peculiar creature. These abstractions of Nature/Society separate symbolically what is unified practically in the history of capitalism: the life activity of the human species in the web of life. On the one hand, the binary is clearly falsifying and confused. It presumes an ontological separation that animates

35 M.J. Watts, “Nature: Culture,” in *Spaces of Geographical Thought*, eds. P. Cloke and R. Johnston (London, Sage, 2005), 150–1.

36 C. Glacken, *Traces on the Rhodian Shore* (Berkeley: University of California Press, 1967), 427.

37 Marx, *Capital*, Vol. I, trans. B. Fowkes (New York: Vintage, 1977), 916; J. W. Moore, “Amsterdam Is Standing on Norway’ Part II: The Global North Atlantic in the Ecological Revolution of the Long Seventeenth Century,” *Journal of Agrarian Change* 10, no. 2 (2010).

38 W.J. Bouwsma, *A Usable Past* (Berkeley: University of California Press, 1990), 123.

39 Marx, *Capital*, Vol. I (1977), 763–4.

40 R. Descartes, *A Discourse on the Method of Correctly Conducting One’s Reason and Seeking Truth in the Sciences* (Oxford: Oxford University Press, 2006 [1627 orig.]).

historical narratives in which relations between human (“social” relations) are theoretically independent of relations between humans and the rest of nature. The binary, moreover, confuses particular natures that are objects of capitalist development with nature as the matrix within which capitalism develops. Nature/Society forms a binary of violent abstractions in Sayer’s sense of the term⁴¹—removing constitutive relations from the historical phenomena under investigation. One can no more extract “nature” from the constitution of capitalism than one could remove law, class struggle, the modern state, science, or culture.

On the other hand, a binary that is empirically falsifying does not deprive it of real historical force. Here the Cartesian binary is an “abstraction not as a mere mask, fantasy, or diversion, but as a force operative in the world.”⁴² The Cartesian binary is a curious sort of real abstraction, created out of the dialectic of value formation as abstract social labor and abstract social nature. It is an abstraction born of—and immanent to—capitalist development, with deep roots in early modern materialist and scientific revolutions, even as the “household concepts” of society, economy, and ecology assumed familiar form only after the nineteenth-century triumph of British capitalism.⁴³ Thus, an unorthodox value-relational approach regards the modernist cognition of the world—which I shorthand as the Cartesian binary—as constitutive of the bizarre disciplines and environment-making patterns inherent in regimes of abstract social labor. Cognition, too, must be grasped as a “material force” under conditions of bourgeois hegemony. Such a value approach does not dissolve the differences between symbolic and material, human and extra-human re/production—nor between the “economic” moment of abstract social labor and the “symbolic” moment of abstract social nature. Instead, I take such cohered differences as my starting point, without however collapsing the tension between the abstract and the concrete in human environment-making.

WORLD-ECOLOGY: WHAT’S IN A NAME?

If, as Marx proposes, humans are themselves “natural forces” and “natural beings”; if humans linked to nature as “nature is linked to itself”; if humans, in our life-activity, transform “external nature” through work, in so doing

41 D. Sayer, *The Violence of Abstraction* (Oxford: Blackwell, 1987).

42 A. Toscano, “The Open Secret of Real Abstraction,” *Rethinking Marxism* 20, no. 2 (2008): 274.

43 Cf. E. Wolf, “Inventing Society,” *American Ethnologist* 15, no. 4 (1988): 752–761; T. Mitchell, *Rule of Experts* (Berkeley: University of California Press, 2002); J.B. Foster and B. Clark, “The Sociology of Ecology,” *Organization and Environment* 21, no. 3 (2008): 211–222.

transform our “own nature” . . . If all these hold, *philosophically*, then they ought to hold theoretically and methodologically. If they are plausible, the relations of humanity-in-nature ought to be fundamental to the stories we tell about our past, and about our possible futures. To follow through on Marx’s philosophy of internal relations is to grasp historical change as co-produced by humans and the rest of nature—but not as two interacting boxes, or even overlapping circles in the well-worn style of a Venn Diagram. The dialectical thrust of Marx’s philosophy is to see humanity/nature as a flow of flows: as humans internalizing the whole of nature, and the whole of nature internalizing humanity’s mosaic of difference and coherence.

This is a challenge to the conceit of Cartesian dualism.

This conceit does not hold up well under close examination. Do a Google search. Get on an airplane. Shop for groceries. Pick up your child from school. Everything humans do, in our everyday lives, and in the major political, economic, and cultural events of our times, is bound up with the earth. Everything that we “do” is bound up with our ideas of this relation. “Nature” and “Society” were useful, for a time, in producing a rough-and-ready picture of global nature and humanity’s place within it. We may be One with nature, but the web of life is also extraordinarily diverse, and diversifying. Distinctions are clearly necessary.

If new distinctions are needed—and they clearly are—they cannot be made in the old ways. A *new mode of distinguishing* is necessary. And this is not easy, because etched in our socio-cultural DNA is a pre-conceptualization of what is and what is not Nature; what is and what is not Society. Worse, Cartesian dualism as a mode of distinguishing confuses the difference between ontological dualism and analytical distinction within evolving wholes. Our scholarly vocabularies, even after four decades of Green Thought, are still contained within—and constrained by—an essentially Cartesian notion of nature-society interaction. Nature goes into one box; Society goes into another. The two interact and shape each other, but the messily bundled and interpenetrating relations of manifold human and extra-human natures are abstracted from the movements of the parts, and the constitution of the Whole. The dualist construction of Nature and Society—Green Arithmetic—poses a question it cannot answer: the question of the Whole. Why? Because Nature plus Society does not add up. Something is missing.

Just what that *something* is can be summed up in two words: vocabulary and method. It is on this basis that I ask the reader to evaluate *Capitalism in the Web of Life*. The origins of this book can be located in two series of discussions that bookended the first decade of the twenty-first century. In one, at the turn of the new millennium, my fellow graduate students in the Department of Geography at UC Berkeley made our way towards a powerful conclusion: “physical” and

“social” geography were in fact one, and ought to be brought together in a new synthesis.⁴⁴ A second series of conversations took shape with a wonderful group of graduate students at Lund University in 2009. In these conversations, we posed a question that was hardly new, but seemed to assume a new urgency after the near-meltdown of the world-economy in 2008. To what degree do we need, and to what degree is it possible, to construct a unified vocabulary that joins humanity-in-nature and nature-in-humanity? The call for such a unified vocabulary had been sounded many times before. Birch and Cobb had done so in their magnificent *Liberation of Life*.⁴⁵ Harvey did the same in his seminal essay on “The Nature of Environment.”⁴⁶ But to no avail. Such calls found some resonance in theory, and even here the most famous metaphors—Haraway’s cyborgs, Actor-Network Theory’s hybrids—found little resonance in the theory of historical change.

New conceptual languages cannot be invented; they can only emerge. Such emergence, in turn, can only be facilitated or obstructed. It has been one thing to call for a conceptual vocabulary that unifies the apparently independent ontological domains of the natural and the social. It is quite a different task to collaboratively develop such a conceptual language in a way that can be, first, legible, and second, readily put to work.

The barrier, it turned out, was methodological: not in terms of accumulating data, but in the ways that we go about bounding, or configuring, human and extra-human natures. The objects Nature/Society were so useful because they were pre-fabricated, legible, and fit easily with a popular imagination of Nature as “out there.” The bounding of time, space, and nature was already done. Sophisticated analyses taking shape out of political ecology and critical geography problematized this, but almost without exception they did so on a regional-scale. In so doing, they reproduced another dualism: of regional change as “real” and global change as “theoretical.”⁴⁷ A method that unfolded the world-historical implications of both political ecology and critical geography awaited, one that would comprehend social relations as spatial relations as relations within the web of life.

To make this argument “work”—to practice what one preaches—is disorienting. Why? Because we are asked to give up the sacred distinction of Nature/Society, and to reconstruct historical objects—such as neoliberalism or Fordism or capitalism—as co-produced by human and extra-human natures. This

44 See especially R. Lave, et al., “Intervention: Critical Physical Geography,” *The Canadian Geographer* 58, no. 1 (2014): 1–10.

45 Birch and Cobb, *The Liberation of Life* (1981).

46 Harvey, “The Nature of Environment.”

47 R. Peet, et al., eds., *Global Political Ecology* (London: Routledge, 2011).

challenge is all the more vexing because it entails new narrative strategies that go beyond the commonplace invocation of local-global connections and the theoretical assertion of capitalist dynamics in general. Such narrative strategies must transcend regionalism and globalism in order to see that capitalism, too, is a real place—every bit as much as Paris or the American Midwest or the Punjab. And it requires an approach that is willing to “tack” back and forth in an ongoing way—between the apparently “social” and the apparently “ecological” in search of the durable relations that co-produce wealth, power, and re/production across successive historical natures.⁴⁸

Forging a new synthesis that crystallizes our two levels of abstraction—humanity-in-nature, capitalism-in-nature—has so far eluded critical scholars. But the elements of such a synthesis are not lacking. Since the 1970s, we have frequently glimpsed the outlines of a unified theory of capital accumulation in its double internality: as capital’s internalization of nature, and as nature’s internalization of capital. Its philosophical basis is found in the relational holism implicit—however unevenly practiced—in both Red and Green Thought.⁴⁹ By the 1980s, the philosophical perspective joined—again, unevenly and implicitly—with a conceptualization of capitalism as *already* a relation of humans with the rest of nature.⁵⁰

However frequently we have glimpsed the possibilities, there has been too little movement in translating the philosophical position (humanity-in-nature) into historical method (capitalism-in-nature). There are many good—and some bad—reasons for the slow pace of transition from philosophy to method. Chief among the good reasons is this: it was, practically speaking, impossible to construct methods and narratives of historical change as co-produced when most nature was invisible—as was the case in world social science until the 1990s. In other words, the accumulation of knowledge about humanity and nature had to reach critical mass. Until it did—and it *has*—it was impractical to develop modes of analysis that pivoted, ontologically and methodologically, on the *oikeios*. For this reason, philosophy and meta-theory were ahead of their times. These contributions, especially those unfolding across the long 1970s,

48 Geographical scale as co-produced by human and extra-human natures is provocatively explored by N. Sayre in “Ecological and Geographical Scale,” *Progress in Human Geography* 29, no. 3 (2005): 276–90.

49 Cf. B. Ollmann, *Alienation* (1971); R. Williams, “Ideas of Nature,” in *Ecology*, ed. J. Benthall (1972); D. Harvey, “Population, Resources, and the Ideology of Science,” *Economic Geography* 50, no. 3 (1974); A. Naess, “The shallow and the deep, long-range ecology movement,” *Inquiry* 16, no. 1 (1973): 95–100.

50 N. Smith, *Uneven Development* (1984); J. O’Connor, *Natural Causes* (New York: Guilford Press, 1998); J.B. Foster, *Marx’s Ecology* (New York: Monthly Review Press, 2000); P. Burkett, *Marx and Nature* (New York: St. Martin’s Press, 1000).

were deeply prefigurative, and often celebrated.⁵¹ But they were rarely embraced in the study of historical change. Historical change remained *social* change. Environmental consequences were added. Green Arithmetic thrived.

We have now reached a different moment. The proposition that historical change can be contained within the containers of “Nature” and “Society” is no longer tenable. The accumulation of knowledge about humanity and nature has reached critical mass. Our planetary knowledge continues to grow, and rapidly. At the same time, the growth of our understanding of how humans are made by the rest of nature, and of how nature is made by humanity has stalled. Nowhere is this clearer than in the popularity and influence of the dominant Anthropocene argument.⁵² In this framework, humans constitute a set of vectors—propelling the “Great Acceleration”⁵³—which threaten planetary crisis. Humans are placed in one category, Nature in another, and the feedbacks between them identified. The evidence amassed by the scholars working in the Anthropocene and cognate perspectives is indispensable. Such evidence helps us outline the problem, and descriptively answer the first key question, “What is occurring?” But such perspectives pose a deeper question they cannot answer: *How do humans co-produce patterns and relations of power and production within nature?* The question cannot be answered in a dualist frame. And this dualist frame constrains our vision of the possible contours and deepening contradictions of the century ahead. For key to understanding the unfolding systemic crisis of the twenty-first century is a historical method—which implies a new radical *praxis*—in which human and extra-human natures co-produce historical change.

In the pursuit of such a method, Marx’s philosophy of internal relations⁵⁴ guides us towards unifying humanity and nature not only epistemically, but ontologically; unified (if non-equivalent) on the terrain of modern world history. Here too, we find important prefigurative arguments that, like Green Thought, date from the 1970s. The translation of dialectics into historical method has always been fraught—everything is connected to everything, but always unevenly, always in motion, always with new points of fracture and new levers of change. It has been easier to assert a dialectical method than to practice it. The world-historical tradition learned this in the 1970s and ’80s. The relationality of historical capitalism was celebrated, but developing world-historical narratives

51 Cf. Smith, *Uneven Development* (1984).

52 Cf. W. Steffen et al., “The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?” (2007); “The Anthropocene: Conceptual and Historical Perspectives,” (2011); “The Anthropocene: From Global Change to Planetary Stewardship,” (2011).

53 Costanza et al., “Sustainability or Collapse” (2007).

54 Ollman, *Alienation* (1971); K. Kosik, *Dialectics of the Concrete* (Boston: D. Reidel Publishing, 1976).

that revealed this relationality turned out to be exceedingly arduous.⁵⁵ In this, world-historical scholars discovered that it was one thing to pursue regional history imbricated in “world process”⁵⁶ and another thing entirely to relationally construct world-historical process as the object of investigation.

To treat the history of capitalism in and through a double internality that sees the ceaseless transformation of the earth in the endless accumulation of capital—and vice versa—was more vexing still. This was the project of integrating world accumulation with everyday life that Wallerstein and Arrighi⁵⁷ suggested, in distinct registers. Such a synthesis involves an ongoing movement between bodies and environment, production and reproduction, on the “ground floor” of everyday life and the dynamics of world accumulation, world power, and world knowledge. This means that capital and power do not act *upon* nature but develop *through* the web of life. They operate across geographical scales and they move in relation to the whole. That whole is neither world-scale process nor the aggregation of regional units but a dynamic totality with properties distinct from its scalar moments.

I have done my best to pursue this synthesis from the standpoint of work and the worker, though more expansively than conventional renderings of these terms. The transition from capitalism *and* nature to capitalism-*in*-nature asks us to place human bodies as sites of environmental history, as bodies engaged in producing “real” commodities and reproducing the “false” commodity, labor-power. From here, we can reconceptualize capitalism: as a system whose chief contradictions turn on the antagonism and interdependence of commodity-relations and the totality of the conditions of reproduction. The human body, in this frame, becomes a crucial site of the contradictions of world accumulation. Marx’s great observation that capitalism “simultaneously undermine[s] . . . the soil and the worker” applies well beyond the era of large-scale industry . . . and well beyond the wage-worker.⁵⁸ The exploitation of labor-power and the appropriation of nature are interwoven in the system’s drive towards endless commodification. From here, it follows that *all* relations between humans are always—already—relations at once “of nature” and “to the rest of nature.” (There is a deep Cartesian bias to our conceptual language, such that we speak of

55 See T. Hopkins, “World-Systems Analysis,” in *World-Systems Analysis*, ed. T.K. Hopkins, et al. (Beverly Hills: Sage, 1982), 145–58; Wallerstein, *The Modern World-System I* (1974); P. McMichael, “Incorporating Comparison Within a World-Historical Perspective,” *American Sociological Review* 55, no. 2 (1990): 385–97.

56 D. Tomich, *Slavery in the Circuit of Sugar* (Baltimore: Johns Hopkins University Press, 1990).

57 Wallerstein, *The Modern World-System I* (1974); G. Arrighi, *The Long Twentieth Century* (London: Verso, 1994).

58 Marx, *Capital*, Vol. I (1977), 638.

humanity’s relation *to* nature as if relations between humans were not, already, relations *of* nature.) To organize a historical analysis around such a relational and holistic perspective necessitates transcending an epistemic rift through which nature becomes Nature: a violent abstraction, an object, an ontologically separate “base” upon which the “superstructure” of Society develops.

CAPITALISM/NATURE/CRISIS

At stake is an interpretation of global crisis appropriate to our times, and relevant to our era’s movements for liberation. It is an open question as to whether we are facing a *developmental crisis* of capitalism—one open to resolution through new rounds of primitive accumulation and commodification—or an *epochal crisis*, one marked by an irreversible decline in capital’s capacity to restructure its way out of great crises. From the twin crises of global urbanization and industrialization signified by “surplus humanity,” to the faltering productivist behemoth of industrial agriculture, to the seemingly endless commodity boom in food, metals, and energy, there are good reasons for considering that an epochal crisis may well be on the horizon.

This is a book about crisis, but not about “social” and “ecological” crisis as conventionally understood. As I will make clear, I do not believe “Society” and “Nature” exist, at least not in their dominant usage: humans without nature and nature without humans. Nor do I believe these are mere “social constructions.” They are, rather, abstractions at once violent and real. They are *violent*, in the sense that they abstract too much reality in the interests of conceptual clarity.⁵⁹ And they are *real*, in the sense that Society and Nature are in fact operative forces,⁶⁰ both in our knowledge structures and in capitalism’s actually existing relations of power and production. Eschewing this, modernity’s most sacred binary, I understand *all* forms of crisis—understood as turning points in the systemic organization of power and production—as bundles of human and extra-human nature. This is a big statement that implies manifold processes, the key point of which turns the conventional wisdom on its head: The crises of capitalism-*in*-nature are crises of what nature *does for* capitalism, rather more than what capitalism *does to* nature. This point of entry offers not only a fresh perspective—one that includes, centrally, the work of *human* natures—but also provides an opportunity for synthesizing two great streams of radical thought since the 1970s: the theory of accumulation crisis and the study of environmental crisis. For all the extraordinary work in both fields, the accounts of “how

59 Sayer, *The Violence of Abstraction* (1987).

60 Toscano, “The Open Secret of Real Abstraction” (2008).

capitalism works" and "how capitalism creates planetary crisis" have not been synthesized, even by our most insightful theorists.⁶¹

Capitalism in the Web of Life is animated by the desire to translate the philosophy of humanity-in-nature into workable methodological frames, conceptual vocabularies, and narrative strategies for world-historical change. This is the core of the world-ecology perspective, which is just that—a *perspective*, not a theory. And certainly not a theory of everything. World-ecology is a *method* of bounding and bundling the human/extra-human/web of life relation—a manifold and multi-layered relation that encompasses everything from the micro-biome to the biosphere. And it is a *framework* for theorizing manifold forms of the human experience, past and present. No perspective can be the work of an individual; its development must be collective and cooperative. I encourage readers to consider this book not as a series of closed formulations—as is too often the case (for readers and authors like). Rather, I have written this book as a series of proposals and reflections on how to move beyond the Cartesian dualism that has so deeply fragmented our understanding of power, exploitation, work, and liberation. Some of these proposals will surely work better than others. As best I can, I have presented the historically grounded theorizations in this book—clustered around capital accumulation, global value-relations, and agro-ecological change—to demonstrate the kinds of questions that world-ecology can open up. To see "Wall Street as a way of organizing nature," for instance, opens up questions that are prematurely—and unnecessarily—foreclosed by the dualisms of contemporary economic and ecological thought.

The argument can now be reprised. If humans are a part of nature, historical change—including the present as history—must be understood through dialectical movements of humans making environments, and environments making humans. The two acting units—humanity/environments—are not independent but interpenetrated at every level, from the body to the biosphere. Perhaps most of all, it means that relations that seemingly occur purely between humans—say, culture, or political power—are already "natural" relations, and they are always *bundled* with the rest of nature, flowing inside, outside, and through human bodies and histories. And in this flow of flows, we are dealing with much more than microbes and metals and the rest of "material life"; we are dealing as well with ideas as material forces. In this, human history is understood as an "unbroken circle" of being, knowing, and doing.⁶²

Many environmental scholars worry that, in abandoning "the" environment as a singular rather than manifold object, we risk giving up the powerful insights of environmental studies. I think the opposite rings truer: the real relational

61 J.B. Foster et al., *The Ecological Rift* (2010).

62 H. Maturana and F. Varela, *The Tree of Knowledge* (Berkeley: Shambhala, 1987).

movements of nature as a whole are obscured by the *a priori* fragmentation of Nature/Society. This breaks with the Green convention of tacking factors of an external Nature—what I will call "nature in general"—onto modern social relations. Nature is not a variable. Instead, we can begin by demonstrating that particular historical processes—in this book, world accumulation—are bundles of human and extra-human nature. These bundles are symbolically and materially enacted. And the limits that emerge are limits not of Nature or Society but limits of the *oikeios* in particular historical-geographical circumstances.

CONCLUSION

What if to say *historical* capitalism implies—*necessitates*—historical nature? And what if to say *historical nature*—since the long sixteenth century—implies and *necessitates* historical capitalism? These are the fundamental questions posed by the double internality. This line of questioning encourages, even compels, us to go beyond the now-commonplace and rarely specified invocation of Nature as one of several crises facing Humanity today. It asks us to examine how the web of life reshapes human organization—as a force of nature—and how civilizations forge power, production and reproduction as ways of organizing nature. It asks us to reflect upon our well-worn conceptualizations of capitalism: as economic system, as social system, as commodity system. For if the production of capital has been the strategic pivot of capitalism, to an even greater extent accumulation has unfolded through the appropriation of planetary work/energy. Such appropriation—of cheap resources, yes ("taps"), but also of cheap garbage ("sinks")—does not produce capital as "value"; but it does produce the relations, spaces, and work/energy that make value possible. Capitalism *does* generalize commodity relations, but the actual extent of such generalization depends on an even greater generalization: the appropriation of unpaid work/energy.

This even greater generalization has today reached a boiling point. For the appropriation of Cheap Nature has not only compelled capital to seek out new sources of cheap labor-power, food, energy, and raw materials, but to enclose the atmosphere as a gigantic dumping ground for greenhouse gases. This enclosure—a relation of capital-in-nature—is today generating barriers to capital accumulation that are unprecedented, especially in agriculture. And at the risk of putting too fine a point on matters, this enclosure of the atmosphere is a *class* relation: not only as cause-effect sequence ("the capitalists did it!") but as a necessary condition of world class relations over the past two centuries.

This way of thinking through the relations of capital-in-nature gives us an alternative to the "nature as external limit" model that dominates Red and Green thinking about ecological crisis, and about climate change in particular. The

problem with such thinking is that it has closed down, rather than opened up, the big questions about the geographical flexibility and historical evolution of capitalism as world-ecology. The limits are real enough. But what is the best way to identify, to narrate, and to explain the emergence of these limits?

The choice is between a Cartesian paradigm that locates capitalism outside of nature, acting upon it, and a way of seeing capitalism as project and process within the web of life. If the destructive character of capitalism's world-ecological revolutions has widely registered—the “what” and the “why” of capitalism-in-nature—there has been far too little investigation of *how* humans have made modernity through successive, radical reconfigurations of all nature. *How* capitalism has worked *through*, rather than *upon* nature, makes all the difference. We have, I believe, arrived at a powerful educative moment. It is one that allows us to erase old boundaries and open new vistas, one where we can reconstitute each of these processes on the basis of the historically evolving *oikeios*. It allows for an understanding of modernity's historically specific natures as webs of liberation and limitation for the accumulation of capital, itself a way of organizing nature. The point can scarcely be overemphasized if we are to take seriously the idea that all limits to capital emerge historically, out of the relations of humans with the rest of nature. And in equal measure, so do all projects for the liberation of humanity and our neighbors on planet earth.

Part I

FROM DUALISM TO DIALECTICS: CAPITALISM AS WORLD-ECOLOGY

Editor's Column: Literature in the Ages of Wood, Tallow, Coal, Whale Oil, Gasoline, Atomic Power, and Other Energy Sources

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 313 VIN NARDIZZI
 316 KEN HILTNER
 318 SAREE MAKDISI
 321 MICHAEL ZISER
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*Power! Incredible,
 barbaric power! A blast, a siren of light
 within him, rending, quaking, fusing his
 brain and blood to a fountain of flame,
 vast rockets in a searing spray! Power!* (419)

This fountain of overwriting in Henry Roth's *Call It Sleep* captures the incommensurability between the frail human form and the power of electricity. After connecting himself to the rail powering trains that run through New York's Lower East Side slums, Roth's ten-year-old protagonist, David, veers between life and death. His electrocution is self-inflicted and deliberate. Earlier in the novel David longs for the source of this "searing spray," for the fantasied angel-coal that burned the prophet Isaiah clean: "where could you get angel-coal? Mr. Ice-man, give me a pail of angel-coal. Hee! Hee! In a cellar is coal. But other kind, black coal, not angel coal. Only God had angel-coal. Where is God's cellar I wonder. How light it must be there" (231). Although David also associates cellar coal with a promising disobedience, with sexual and religious transgression, Roth is more skeptical; he explores modernity's coal-made economy as a dark power tarnishing America's promise as *di goldene medine* (the golden land). In a country that offers opportunity, but at the cost of language loss and hard labor, survival demands a constant entanglement with dirty energy.

This Editor's Column peruses the relation between energy resources and literature. Instead of divvying up literary works into hundred-year intervals (or elastic variants like the long eighteenth or twentieth century) or categories harnessing the history of ideas (Romanticism, Enlightenment), what happens if we sort texts according to the energy sources that made them possible? This would mean aligning Roth's immigrant meditations on power with Henry Adams's

Biographical notes about the contributors appear on page 326.

blue-blood musings on “the dynamo and the virgin,” or comparing David’s coal obsessions with those of Paul, the coal miner’s son in D. H. Lawrence’s *Sons and Lovers*. We might juxtapose Charles Dickens’s tallow-burning characters with Shakespeare’s, or connect the dots between the fuels used for cooking and warmth in *The Odyssey* and in Gabriel García Márquez’s *Cien años de soledad*.

I first became interested in literature’s relation to energy when, piqued by America’s energy extravagance, I picked up Jack Kerouac’s *On the Road* and wondered, how often do Dean Moriarty and Sal Paradise stop for gas? As they criss-cross the country, do they worry about how much fuel they’re using or the price of oil? Or is this a question for the twenty-first century, for a nation that survived the Arab oil embargo and the BP oil spill and may not survive global warming? By 1950 America’s appetite for oil surpassed its use of coal. By the 1970s America was consuming seventy percent of the world’s oil with little thought about sustainability. In an era of unprecedented material abundance, why should Paradise, Moriarty, or a host of other car-mad heroes worry about gas? It seemed as naturally there, as American, as the apple pie and ice cream Paradise eats “all the way across the country” (49). *On the Road*’s characters rarely experience the material world as an impediment. For Paradise even cotton picking becomes a lark. After allowing Mexican American friends to finish his picking, Paradise feels “like a million dollars; I was adventuring in the crazy American night” (100).

Even though Paradise avoids material worries, *On the Road* is fascinated with clean raw materials and their transformation into dirty culture (“before me was the great raw bulge and bulk of my American continent; somewhere far across, gloomy, crazy New York was throwing up its cloud of dust and brown steam” [79]). Energy anxiety keeps popping up. Hitching a ride east, Moriarty rants about bourgeois drivers obsessed with

“. . . the weather, how they’ll get there—and all the time they’ll get there anyway, you see. . . ‘Well now,’” he mimicked, “‘I don’t know—maybe we shouldn’t get gas in that station. I read recently in *National Petroffious Petroleum News* that this kind of gas has a great deal of O-Octane *gook* in it and someone once told me it even had semi-official high-frequency *cock* in it, and I don’t know, well I just don’t feel like it anyway . . .’ Man, you dig all this.” He was poking me furiously in the ribs to understand. I tried my wildest best.

(209; 3rd ellipsis in orig.)

Moriarty isn’t worried about the price of oil (or its Saudi and Venezuelan sources—a problem for American business in the 1950s) or his own fuel dependency, but is Kerouac? Is there an energy unconscious at work in this text? Paradise starts his trip in the midst of the unknown and unsaid. He travels in the wrong direction (northeast) and stalls, “crying and swearing and socking myself on the head,” in “an abandoned cute English-style filling station,” where he curses and cries “for Chicago” (12–13). Are the gas station’s empty pumps a premonitory metaphor for resource anxiety, for what Pierre Macherey calls “that absence around which a real complexity is knit” (101)? Or is an empty gas station just an empty gas station—the halted traveler’s bad luck, the writer’s reality effect? In Macherey’s theory of absences, “[w]hat is important in the work is what it does not say. . . . What the work cannot say is important, because there the elaboration of the arguments is acted out in a sort of journey to silence” (87). But is this always true?

Certainly Kerouac’s characters are gasaholics. Oil dependency created their world; each city, suburb, truck stop, and bite of pie depends on Standard Oil, Shell, Mobilgas, or Phillips 66. What happens if we rechart literary periods and make energy sources a matter of urgency to literary criticism? What happens if we think systematically about how *On the Road* and its sibling texts relate to energy sources across time and space? Within the genre of the

1950s road narrative, what does it mean that John Updike's Mrs. Maple gets excited when a muscular gas station attendant rocks her car as he washes its windows (56)? What about Elizabeth Bishop's "The Moose" and its antipastoral reminder that in the twentieth century sacred sight must be carbon-based?

by craning backward,
the moose can be seen
on the moonlit macadam;
then there's a dim
smell of moose, an acrid
smell of gasoline. (173)

We need to contemplate literature's relation to the raucous, invisible, energy-producing atoms that generate world economies and motor

our reading. Let me chart some coordinates for an energy-driven literary theory. First, resource depletion is not new; it's a repetitive fact. Native Americans living in woodland regions moved entire villages whenever nearby forest stocks were depleted. A Jewish holiday is built around an oil shortage and its miraculous cessation.

Second, energy sources have varied wildly over time and space and include almost anything that burns: palm oil, cow dung, random animal carcasses mounted on sticks. When the biblical God declared, "Let there be light," was oil from fish stocks or olives the source of illumination?

Third, energy use is uneven. The age of coal is not close to being over, is perhaps barely begun (fig. 1). Looking at the "ages" of energy

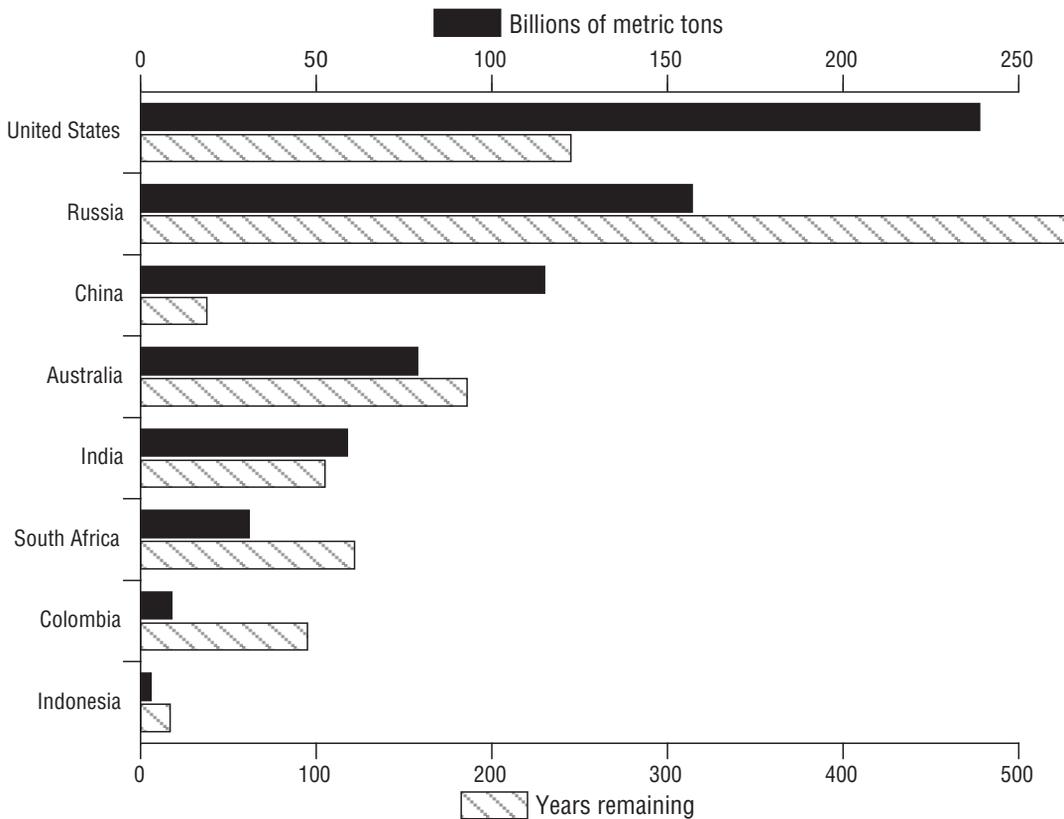


FIG. 1

Coal reserves at the end of 2009. This chart uses two scales. The upper axis (black bars) shows the amount of coal available for extraction in each country. The bottom axis shows how much longer the reserves will last at the 2009 production rate ("Burning Ambitions"; *The Economist*; Economist Newspaper, 27 Jan. 2011; Web; 28 Mar. 2011).

will never be a tidy endeavor, since fuel sources interact. Describing China's burgeoning economy, Clifford Krauss writes that

China's thirst for energy is leading it to build not only coal-fired power plants, but also wind farms, at a record pace, and to invest in energy sources around the world, like oil fields in Sudan, hydroelectric power in Burma and natural gas fields in south Texas. Beijing's ability to lift hundreds of millions of people into the middle class over the coming years will be largely based on its ability to produce more energy, and its foreign policies can also be expected to follow its energy interests. . . .

Figures 2 and 3 enumerate facets of American energy use between 1775 and 2009. Should we look at each of these systems when we examine the culture they helped to produce?

Fourth, thinking about literature through the lens of energy, especially the fuel basis of economies, means getting serious about modes of production as a force field for culture.¹ The stolen electricity at the beginning of *Invisible Man*, the marching firewood in *Macbeth*, the smog in *Bleak House*, the manure fires in Jorge Luis Borges's *Labyrinths*, the gargantuan windmills in *Don Quixote* would join a new repertoire of analysis ener-

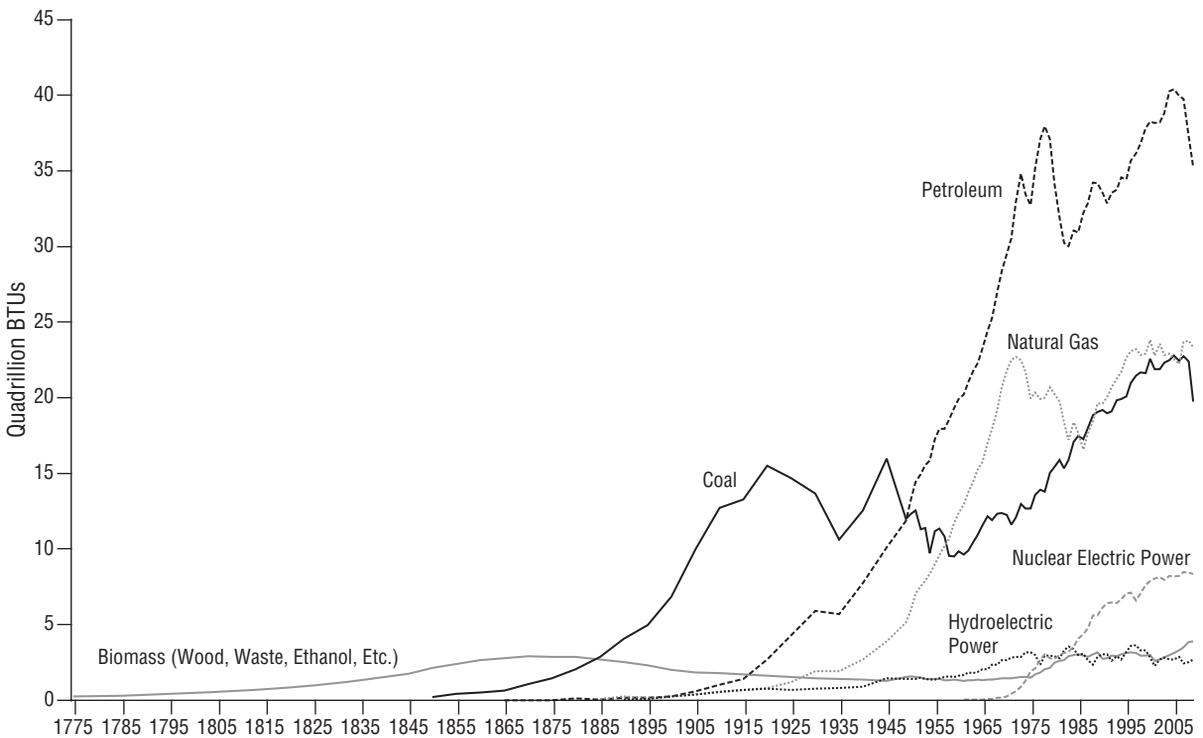


FIG. 2

Consumption of energy by source in the United States, 1775–2009. “As for the social, economic, and ecological consequences of evolving energy sources, they are too deep and numerous to do more than give suggestive examples. One of the most significant is the shift between muscle and machine power. Horses, mules, and other draft animals were invaluable prime movers well into the first half of the 20th century, and despite increasing reliance on fossil fuels and the engines they powered, the number of draft animals in the United States continued to rise until about 1920. As late as 1870, draft animals accounted for more than half of the total horsepower of all prime movers. Their displacement by fossil-fuel engines meant, eventually, the disappearance from city and farm alike of millions of animals, along with the vast stables that housed the city-based animals, the mountains of dung they left on city streets, and many of the English sparrows that fed on the grain therein” (US, Dept. of Energy, Energy Information Administration; “United States Energy History”; *Annual Energy Review 2009*; US, Dept. of Energy, Energy Information Administration, 19 Aug. 2010; Web; 8 Feb. 2011).

gized by class and resource conflict breaking into visibility.

Fifth, this inquiry about energy's visibility or invisibility might change our reading methodologies. *The Political Unconscious* has long been a bible for me, with its elucidation of three extended networks for examining texts. Fredric Jameson suggests that if we first come upon the text as a symbolic act or individual parole, we must also recognize it as an ideologue or social utterance that reconstitutes class conflict, as well as an "ideology of form," a dream catcher that captures skirmishing sign systems "which are themselves traces or anticipations of modes of production." These systems represent "progressively wider horizons" for examining the ways in which the text enacts imaginary resolutions of real social contradictions (76). Does this model of

the political unconscious also describe an energy unconscious? Without reverting to crude materialism, I want to suggest that energy invisibilities may constitute different kinds of erasures. Following Jameson, we might argue that the writer who treats fuel as a cultural code or reality effect makes a symbolic move, asserts his or her class position in a system of mythic abundance not available to the energy worker who lives in carnal exhaustion. But perhaps energy sources also enter texts as fields of force that have causalities outside (or in addition to) class conflicts and commodity wars. The touch-a-switch-and-it's-light magic of electrical power, the anxiety engendered by atomic residue, the odor of coal pollution, the viscous animality of whale oil, the technology of chopping wood: each resource instantiates a changing phenomenology that could re-

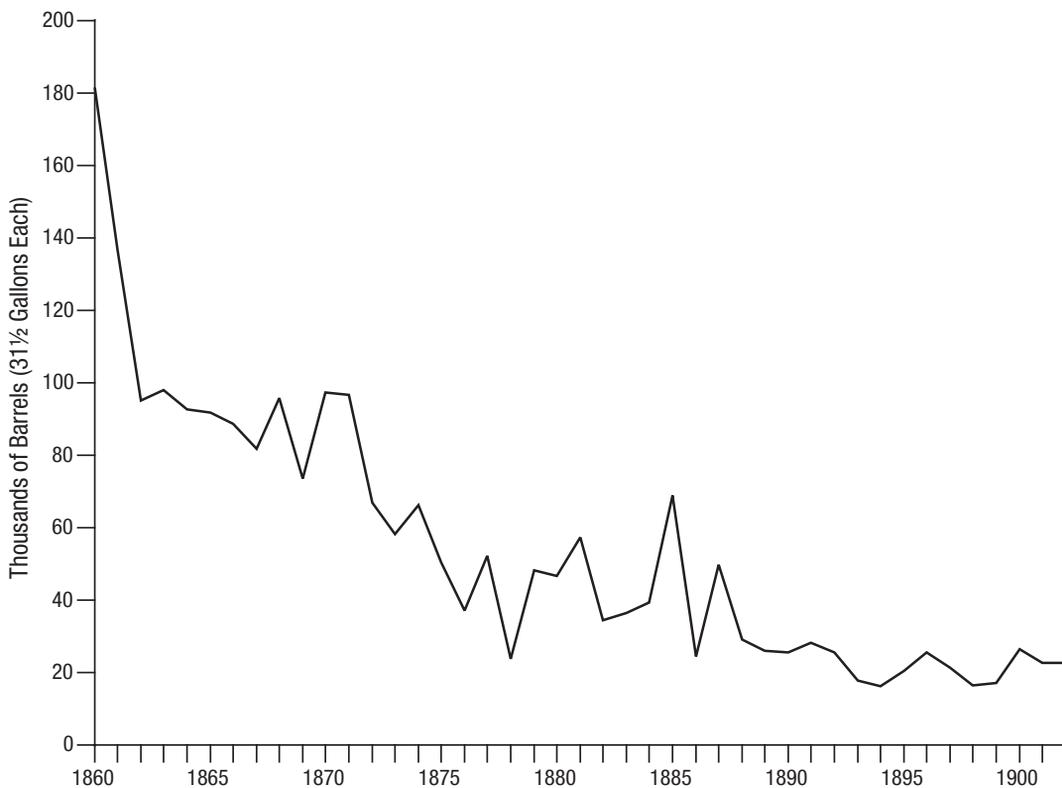


FIG. 3

Consumption of sperm and whale oils combined in the United States, 1860–1902 (US, Commission of Fish and Fisheries; *Part 28: Report of the Commissioner for the Year Ending June 30, 1902*; Washington: GPO, 1904; 204; *Google Books*; Web; 8 Feb. 2011).

create our ideas about the literary text's relation to its originating modes of production as quasi-objects.

Finally, in thinking about energy we must make room for the miniature (that faint odor of moose mingling with the smell of gasoline) but also contemplate scale and the complex relations between literature and trade. Giovanni Arrighi points out that the "reshuffling of goods in space and time can add as much use-value ('utility') to the goods so reshuffled as does extracting them from nature and changing their form and substance, which is what we understand by production in a narrow sense." He quotes Abe Galiani: "Transport . . . is a kind of manufacture . . . but so is storage" if it makes goods "more useful to potential buyers" (177). Mrs. Maple's gas station attendant washes her windshield while standing on a concrete-covered basin of stored gasoline that may have come from Venezuela, Saudi Arabia, or Oklahoma. Does this change the libidinal or economic values in Updike's text? How do we think about utility and poetry together? Whatever the answer, thinking about energy is already embedded in older and stranger histories than our own, and to unearth these histories the following essays explore the roles of tallow, wood, coal, oil, human labor, and energy futures in a variety of texts. In addition, Imre Szeman and I plan to edit a book on literature, energy, and the ways in which thinking about energy sources might transform our notions of literary periods. We hope you'll send essays and proposals to

pyaeger@umich.edu and imre@ualberta.ca by 1 September 2011.

Patricia Yaeger

NOTE

1. In Jameson's *The Political Unconscious* the text becomes "a field of force in which the dynamics of sign systems of several distinct modes of production can be registered and apprehended," and no system should become a master code or allegory for its age (98). But since fuel sources hover in the backgrounds of texts, if they speak at all, to pursue an energy unconscious means a commitment to the repressed, the *non-dit*, and to the text as a tissue of contradictions. What is the best methodology for pursuing literature's relation to energy? The answer may lie in systems theory instead of the political unconscious, or in new species of literary Marxism.

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Greasy Citizens and Tallow-Catches

LAURIE SHANNON

Hamlet, performing his self-styled madman's script, forces his auditors to remember a disturbing truth that is normally repressed: "A man may fish with the worm that hath eat of a king, and eat of the fish that hath fed of that worm" (*Ham.* 4.3.27–28). The logic of circulation in the line recalls the Pythagorean doctrine of the transmigration of souls, a view often mocked in early modernity as equivalent to insanity.¹ But Hamlet's line traces no flight by the soul from one body to another. Instead, it joins a traditional Christian perspective on worldly vanities (a fortune's-wheel argument) to an insistence on the equivalently gross materiality of all flesh, from worms to kings and back again. The economy of circulation here charts not the routes of individuated souls but rather the disindividuating paths of recycled energy.² "We fat all creatures else to fat us," his speech declaims, "and we fat ourselves for maggots" (22–23). In Hamlet's recycling vision, fat is fuel—yet fat is (also) us.

To manage the disturbance this view presents between denominators of political or entitled personhood and the commercial metrics of exchange, we designate as "tallow" only the byproduct of nonhumans—of Hamlet's "all creatures else." Tallow consists of "animal fat (esp. that obtained from . . . about the kidneys of ruminating animals, now chiefly the sheep and ox), separated by melting and clarifying from the membranes, etc., naturally mixed with it . . ." ("Tallow, sb"). While fat spoils when raw, once processed as tallow it becomes storable and portable, a product used to seal boats, make soaps, dress leather, bind foods (like haggis), and, of course, provide light through combustion.³ Tallow candlelight ranked beneath that of wax, which was pricier; *Cymbeline* disparages "the smoky light / That's fed with stinking tallow," calling it "base and illustrious" (1.6.109–

10). Reeky tallow would be replaced by the oil later commandeered by the large-scale whaling industry emerging in Massachusetts; stumping in England for the United States whaling trade in 1785, John Adams vaunted "the fat of the spermaceti whale" as yielding "the clearest and most beautiful flame of any substance that is known in nature" (308). Until then, though, tallow was a cheap, readily available staple, the yield of small-scale, pre-modern practices of animal slaughter that were local and integrated into daily life. Sheep overwhelmingly supplied tallow in a wool-producing economy. Contemporaneous literary contexts, however, persistently defy the official confinement of tallow as something derived from "all creatures else." The most interesting tallow yielders were people.

In Shakespeare's environs, the ideal deer to kill was one "in grease" or "in prime or pride of grease" ("Grease, sb"). The well-fed state of the herd in *As You Like It* provokes their designation as "fat and greasy citizens" (2.1.55). Yet even as deer are measured by their commodifiable fat, their free motion and rightful claim to Arden's woods earn them a name that countervails their commodification: "citizens." Thus, early modern animals resist wholesale reduction to usable matter. Equivocations like this one, however, also work in reverse. Persistent recognition that human matter is fat, oily, grease-laden, melt-able, combustible, and consumable erodes tallow's separation of animal fat from human flesh.

The Comedy of Errors assesses Nell in tallow metrics: "she's the kitchen wench, and all grease, and I know not what use to put her to but to make a lamp of her . . . I warrant her rags and the tallow in them will burn a Poland winter" (3.2.93–99). Falstaff affords repeated blurrings of personhood and oily

substance. Although *lean* deer were properly “rascals,” quibbles make Falstaff a “fat rascal” (i.e., a plump Yorkshire tea cake); a “fat-kidneyed rascal” (indexing the place from which tallow was drawn); and an “oily rascal” (*Wiv.* 2.2.5–6; *1H4* 2.2.5, 2.4.521).⁴ In *The Merry Wives of Windsor*, Falstaff is a beached whale whose oil might be collected (2.1.61–62); “a barrow of butcher’s offal” (3.5.5); and “the fattest” stag “i’ the forest,” who might “piss his tallow” (expend his fat or energy) in the exertions of “rut-time” (5.5.12–15), as the uncongaled metaphors undermine his status as subject. As Wendy Wall specifies, “[T]he play deflates [Falstaff’s] bodily pretensions by making him into manageable domestic goods” (116–17). Seeking Falstaff, Prince Hal shouts, “Call in ribs, call in tallow,” and Falstaff enters to vivid insults climaxing with “whoreson, obscene, greasy tallow-catch.”⁵

A *tallow-catch* Falstaff is a container of commodifiable fat. When called “a candle, the better part burned out,” Falstaff confirms himself a “wassail candle . . . all tallow” (*2H4* 1.2.155–58). Noting the contempt that makes a lowly Ben Jonson character “an unsavoury snuff” (i.e., “a tallow candle quickly burning itself out”), Gail Kern Paster excavates the humoral economies enabling the conceit (222). The trope of the human body as a combustible candle also had prominent elite precedents. John Foxe’s *Book of Martyrs* (1563) recorded the Protestant Hugh Latimer’s proclamation from the stake: “We shall this day light such a candle by God’s grace in England, as (I trust) shall never be put out” (154). Elizabeth herself (decorously adjusting the metaphor to wax but preserving the logic) claims, “I have . . . been content to be a taper of true virgin wax, to waste myself and spend my life that I might give light and comfort to those that live under me” (347). Both of these self-exending candles are imagined to burn for public benefit. The trope thus works both ways, representing prodigal waste and public self-sacrifice, just as it reveals what official

nomenclatures repress about fuel: we are as combustible as “all creatures else.”

The literary apotheosis of the body-candle metaphor comes in Charles Dickens’s *Bleak House* with Mr. Krook, who combusts (appropriately enough) in a mercantile setting among the inscrutable commodities of his rag and bottle shop. Soot falls “like black fat,” and a “stagnant, sickening oil” leaves a “dark greasy coating on the walls and ceiling”; Krook’s death by “Spontaneous Combustion” is “engendered in the corrupted humours of the vicious body itself” (316–20). In *Bleak House*, this event presents a “dreadful mystery” for a coroner (323). Combustibility is no longer a familiar trope reflecting palpable knowledge of the human body’s combustible stores of energy. From the whale oil that lubricated the machines of the Industrial Revolution (retrieved by ships whose journeys recast notions of space and time) to particle physics and nanoengineering (which recast space and time again), Western culture has transitioned to forms of energy whose origins are opaque to ordinary perception, whose material workings are comprehended only by specialists, and whose business operations are shielded and securitized. One result seems clear. Literally visceral knowledge of where energy comes from, or what energy is, has been substantially extinguished.

NOTES

1. See the Pythagorean “sanity” test crazily administered to Malvolio in *Twelfth Night* (4.2.49–59).

2. For the related cycle from “dust to dust” in *Hamlet*, see De Grazia, ch. 2.

3. The Worshipful Company of Tallow Chandlers, chartered in 1462, ranks just below the wax chandlers’ company in the livery system. The present-day tallow chandlers, according to their Web site, “have . . . built up close links with energy company BP, on the basis of a *shared interest in heat and light*” (*Worshipful Company*; emphasis mine).

4. For deer nomenclatures and full discussion of “rascal Falstaff,” see Berry, ch. 5.

5. *IH4* 2.4.110–11, 225–26, amending Bevington's "keech" to the First Folio's "catch." Numerous modern editions follow earlier amendments of "catch" to "keech," or lump; "chest," "ketch," and "cask" are other alternatives but seem unnecessary (Clark and Wright 277).

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Wooden Slavery

VIN NARDIZZI

"There's wood enough within." Projected from offstage, this response to Prospero's summoning launches *The Tempest's* Caliban into literary history (1.2.315). Its emphasis on adequacy indicates that the slave has completed his work, and its disgruntled tone stems from this sense of closure and suggests an insubordination later elaborated in Caliban's plan to murder Prospero and burn his books. Such acts of defiance have made Caliban, as Jonathan Goldberg says, "a byword for anticolonial riposte" (ix). But what of the wood mentioned in Caliban's response? In pursuing this question, which may seem slight when weighed against the heft of empire and resistance to it, we discover that Caliban keys us into the indispensability of wood as the primary energy source underpinning subsistence and manufacture in the preindustrial era.¹ Moreover, the response encodes a fantasy of plenty articulated during a

time of shortage in England. This resonance has fallen off our cultural radar because, unlike Shakespeare and his contemporaries, most of us in the global North no longer live in the "age of wood."² Were we to substitute "oil" for "wood" in Caliban's debut line, we would more readily comprehend that the line evokes a necessary energy source and that the extraction and use of energy sources can cause environmental devastation. I suggest that thoughts about supply, source, and price may also have crossed the minds of *The Tempest's* earliest audience members when Caliban offers this accounting of the island's energy security.

The age of wood is, I trust, an epochal designation unfamiliar to literary scholars. In environmental history, it names a swath of time that stretches from prehistory to the second half of the eighteenth century, when coal generally replaced charcoal (an energy

source plucked from the ashes of cone-shaped piles of lumber that had been charred) in industrial iron making and fuelwood in homes, where it heated food and consumer alike. Sometimes dubbed *the wooden age* (Warde 6), this ligneous era bursts the strictures of traditional nomenclature for Anglo-American literary periods, outstripping epochs retrospectively parceled into temporal units (*the [long] eighteenth century*) or labeled for cultural movements (*the Renaissance*), monarchies (*the age of Elizabeth*), or position in relation to other periods (*the Middle Ages* and *early American*). To better apprehend the sweep of the age of wood, we could do worse than to reflect on the life span of two of the planet's most mature organisms: Methuselah, a bristlecone pine in California, and Old Tjikko, a Norway spruce in Sweden. Dendrochronological research has determined that these trees are roughly 4,800 and 9,550 years old, respectively ("Swedes"). They are colossal measuring sticks for approximating the age of wood's breathtaking temporal reach.

The counterpart of the era's mind-boggling temporal coordinates is its geographic range. In a discussion of colonial Brazil, Shawn William Miller observes that "prior to 1800 one had almost no place to go but the forest to obtain a practical source of heat" (3). Case studies of wood dependency in other preindustrial locales—colonial America (Perlin), Easter Island (Diamond), England (Nef), Germany (Warde), Japan (Totman), and the Venetian Republic (Appuhn)—and comparative accounts that start with the despoiling of woodlands in the ancient and the early modern worlds bear witness to Miller's thesis (Richards; Williams). In so doing, both kinds of environmental history have helped to color in the map of a global forest that once was.

Given the temporal and geographic magnitude of the wooden age and the diverse expertise that its study entails, how do we bring into focus the grain of literatures dating from this era? Robert Pogue Harrison offers

a model. He surveys an array of literatures to demonstrate the transhistorical force that the forest has exerted on the imagination. My sense, however, is that "wooden-age literature" tends to represent spectacular employments of this energy source, from the funeral pyres of ancient epic to public burnings of presumed heretics, and eschews its routine uses in hearth and home. When these mundane practices come into view, special circumstances frame their inclusion. Robinson Crusoe remarks that he "found it absolutely necessary to provide a place to make fire in, and fewel to burn" (Defoe 80), but although he is a meticulous recorder of everyday life, we never see him search for either on the island. Instead, he mentions these matters in connection with other events: his illness (106, 108), his firing of pottery and first baking of bread (132–34), and his discovery of a cave (182–83). Are his energy sources, despite being "absolutely necessary" to survival, paradoxically not significant enough for literary representation? Are they too prosaic to be described in their own right? Undertaking a project for fuelwood and charcoal as sprawling as Harrison's might prove well-nigh impossible.

Caliban's debut line is no exception to this representational rule. Yet it does not exhaust the presence of wood in the play: Prospero tells Miranda that they "cannot miss" Caliban because he "does make our fire" and "[f]etch in our wood" (1.2.312–13); Caliban throws down a bundle of wood at the start of one scene (2.2), and Ferdinand, the play's mock slave, hauls a log onstage in the next (3.1). This log is a synecdoche for the "[s]ome thousands" that he must "pile . . . up" (3.1.10). Why might this energy source have such stage prominence? It may well be, as *There Will Be Blood* (2008) and *Avatar* (2009) suggest, that energy sources—oil and "unobtainium," respectively, in these films—rise to a level of detailed representation during times of energy insecurity. My larger project regards Shakespeare's wooden Os—his playhouses—

as uniquely self-reflexive spaces for meditating on wood: its expense, its indispensability, its scarcity, and its centrality to dreaming. In this framework, *The Tempest* proves an imaginative record of an unprecedented wood scarcity gripping Shakespeare's England and a complex response to energy insecurity. Prices for this staple good were accelerating when *The Tempest* was first performed (Williams 170), and polemics describing an unremedied shortage predicted ecopolitical collapse.³ In a pamphlet contemporaneous with the play, Arthur Standish articulates the potential fallout: "no wood no Kingdome" (2). How might audience members affected by the scarcity have apprehended the abundance of wood on *The Tempest*'s island, which could be put to various uses (from heating to ship-building), and the fact that Prospero ships off to Europe without any of it? *The Tempest*'s depiction of "wooden slavery" (3.1.62) may thus have stoked colonialist desire for restocking a depleted resource long before Caliban spoke on behalf of anticolonial resistance. From our vantage, it also emblemizes a historical tendency to take essential energy sources for granted and simultaneously to mobilize them in the exercise of power, as Prospero does.

NOTES

1. In this epoch, wood was also a primary building material (Williams).

2. Pearson shows that petroleum cars can be retrofitted to run on wood. Youngs argues that the age of wood has not ended, and wood's ubiquity as a source of energy in so-called Third World nations bears this proposition out. The matter of "energy simultaneity" is outside the scope of this piece.

3. I elaborate the likely causes of this shortage and the proposed solutions to it, which included colonial plantations in Ireland and the New World, in my manuscript in

progress, "Evergreen Fantasies: Shakespeare's Theatre in the Age of Wood."

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Coal in the Age of Milton

KEN HILTNER

On a foggy morning in 1578, “greved and anoyed” by the strong smell of coal smoke in the air surrounding Buckingham Palace, Queen Elizabeth refused to travel into London (Lemon 612). The immediate problem was easily resolved: invoking an ordinance regulating the large-scale burning of coal, which had been on the books since 1307, authorities quickly arrested and imprisoned a local Westminster brewer and dyer. The larger issue, however, would not go away. The reason was simple: as Edmund Howes noted in 1615, because there was a “great scarcity of wood throughout the whole kingdom, and not only the City of London, but in all haventowns” (Howes and Stow 33), coal use was skyrocketing throughout England. While we might imagine that air pollution from fossil fuels would not become a major urban problem until the era of Blake or Dickens, it preceded them by at least two centuries. In fact, the first chimney sweeper’s song was penned not by Blake but by William Strode, in 1635.

By the time Milton was writing *Paradise Lost*, the problem was massive and deadly. While collecting data for London’s Bills of Mortality in 1665, John Graunt noticed a spike in London’s death rate when compared with that of the countryside, which he quickly connected to respiratory illness caused by coal smoke. As he succinctly noted, people “cannot at all endure the smoak of London, not only for its unpleasantness, but for the suffocations it causes” (394). Because Londoners almost exclusively burned a noxious, sulfurous form of coal known at the time as “sea coal” and the population of the city was growing at an astonishing rate (perhaps as much as tenfold from 1500 to 1700), Graunt realized that respiratory illness caused by coal smoke was quickly becoming one of London’s leading causes of death. And the danger was not limited to human beings.

As John Evelyn noted in 1661, by mid-century a variety of species of local plants in London had already become extinct because of coal smoke and the resultant acid rain (7). Similarly, by 1627 it was realized that acid rain was “tainting the pastures, and poisoning the very fish in the Thames” (Bruce 270). London’s signature fog exacerbated the situation, since it held sulfur dioxide close to the ground in a damp and deadly cloud, which affected more than just living things. Late in the 1620s, Charles I realized that “the corroding quality of the Coale Smoake, especially in moist weather,” was eating away the surfaces of even stone buildings, including, as he noted, Saint Paul’s Cathedral (Dugdale 134).

London’s air pollution problem appears in Renaissance literature as well. Although the first work to take urban air pollution as its principal subject, Evelyn’s *Fumifugium*, did not appear until 1661, a great many earlier (as well as contemporary) texts refer to the issue, if often indirectly. London’s coal-smoke problem is alluded to in such canonical works as *The Faerie Queene* and *Paradise Lost*, as well as in enormously popular poems of the time, like John Denham’s *Cooper’s Hill* (Hiltner, *What*, ch. 5). Moreover, a range of writers in the period, including Margaret Cavendish and Kenelm Digby, considered the health risks of coal smoke, while the massive mining industry that procured all this coal appears in the writings of John Leland, John Taylor (“the water poet”), Celia Fiennes, Milton, and many others. Even the choice of the word *brimstone* (which referred to sulfur and coal) for the 1611 Authorized King James translation of Hebrew and Greek words signaling, respectively, “Jehovah’s breath” and “divine incense” may have been because it was thought that the most effective way to imagine hell was to allude to London’s hellish

air pollution. In countries where coal was not used extensively, hell is rarely imagined with sulfurous air pollution. Dante's *Inferno*, for example, contains no such references.

When Milton writes about hell in *Paradise Lost*, he invokes London's air pollution problem in a variety of ways. First, he is critical of the mining operation that the devils set up in hell on a mountain that "[s]hon with a glossie scurff" (a sulphurous deposit) and "whose griesly top," like a smokestack, "[b]elch'd fire and rowling smoke" (1.674, 670–71), filling the air of hell with a sulfurous cloud. The air in Milton's hell is so bad that when the devil Beelzebub first learns of earth, he hopes traveling there might "purge off this gloom" and that earth's "soft delicious air" might, for those who "breathe her balm," "heal the scar of these corrosive fires" (2.400–02). True to Beelzebub's speculation, when Satan first arrives in Milton's Eden he behaves like someone from a "populous City" who has ventured to the countryside to freely "breathe / among the pleasant Villages and Farmes" (4.445–48). In setting up the description in this way, Milton nicely draws a parallel between hell and a "populous City," like London, whose air is so polluted that its citizens desire to leave it to breathe pure country air. The desire to leave the smell and dangers of coal smoke to enjoy the fresh air of the countryside was not limited to Milton's Satan and Queen Elizabeth; rather, as John Stow made clear in 1598, it was felt by thousand of Londoners, who, on holidays and at other opportunities, would leave their homes to "recreate and refresh their dulled spirits in the sweete and wholesome ayre" of the rural surrounds (127).

Since so many Renaissance writers, including Milton, mentioned the issue, it is useful to ask why literary critics today are often unaware of early modern London's coal-smoke problem. I suspect this is partly because we tend to associate such environmental problems with technological modernity and the so-called Industrial Revolution. While it is

true that air pollution in nineteenth-century cities like Manchester (and Dickens's fictitious "Coketown") was largely industrial in origin, industry is not the only possible source of air pollution. The citizens of early modern London caused it themselves by burning coal for cooking and residential heating, something that they had been doing for centuries before the Renaissance but now did almost exclusively (since wood was largely unavailable) and at a feverish rate. Because London's damp winters were associated with a range of illnesses and a warm fire was believed to be among the best ways of fending them off, the cheap appeal of coal proved irresistible. As I have argued, this presented Londoners with a dilemma. Knowing the health risks of the smoke but believing coal fires their best defense against winter sicknesses, Londoners kept a life grip on a practice that was killing them (Hiltner, "Renaissance Literature").

Renaissance London's air pollution may also escape our attention because English writers were sometimes reluctant to confront the issue directly, for fear of maligning their capital city, which, some of them argued, was quickly becoming the rival of Paris and Rome, neither of which had comparably polluted air. Some went so far as to outlandishly misrepresent the facts (even if they deceived no one who had ever visited London, even today), as did Thomas Gainsford in 1618: "instead of foggy mists and clouds . . . you have in London a sun-shining and serene element for the most part" (qtd. in Manley 44).

As ecocritics and historians are increasingly making clear, a range of truly modern environmental issues, such as large-scale urban air pollution from the burning of fossil fuels, first emerged in the early modern period. With these problems came a number of questions that remain with us today. With respect to coal and to fossil fuels in general, the most important of these may be as relevant now as it was then: how do we reduce our dependency on something that endangers

plants, animals, and ourselves but that we believe essential to life?

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Empire and Human Energy

SAREE MAKDISI

First Trades & Commerce ships & armed
vessels he builded laborious
To swim the deep & on the Land children are
sold to trades
Of dire necessity still labouring day & night
till all
Their life extinct they took the spectre form
in dark despair
And slaves in myriads in ship loads burden
the hoarse sounding deep:
Rattling with clanking chains, the Universal
Empire groans . . . (360–61)

William Blake's 1797 vision of empire as a global system of brutalization and exploitation reminds us that global empire, for all its interest and investment in other forms of energy—water, wind, steam, oil—has always depended most on human energy: the human power mobilized in warfare, conquest, subjugation, and, above all, the form of economic production so powerfully captured in *The*

Four Zoas. Blake's vision of bodies chained together and marshaled for the productive purposes determined and dictated by a despotic power—a vision of a world system literally powered by human energy, while tied, perhaps, to other forms of energy as well—is of enduring interest to us. For one thing, it emerged at a moment of profound transition in England and around the world, a moment that set the stage for our own era, a moment in which the imperial investment in human energy was changing qualitatively and quantitatively, as more and more peoples around the world were being violently yoked together to serve the same system of production and exchange and as—more palpable to Blake—the nature, cultures, and lifeworlds of England were being altered beyond recognition by a shift in how human energy was tapped.

More immediately, however, we ought to recognize the transformations captured by

Blake not only because they set the stage for the fully integrated, inescapably globalized world that we inherited from the 1790s but also because the transformations and dislocations of human energy initiated in his time have continued unabated into our own, in ways that affect even the readers of this journal. After all, the closest antecedents of today's academics and would-be academics are arguably the English weavers of Blake's time, whose training and skill meant nothing in an age of steam-powered machines yoked to de-skilled mechanics. The recently announced closure of several humanities departments at the University at Albany, State University of New York; the elimination of the philosophy department at the University of Middlesex; and the looming downsizing of the humanities and social sciences in the English university system are only the most recent reminders that those contemplating joining the ranks of the world's last artisans (specialized, more or less free to determine their own hours and rhythms of work, working in self-motivated or shifting cycles rather than according to an abstract institutional schedule) must contend with the continuing unraveling of a whole culture of academic teaching and research and its replacement by a system of educational mass production dependent on exploited temporary and migrant laborers whose individual skills and research interests are of little importance to managers and administrators (sixty-eight percent of university teaching in the United States is now carried out by transitory, non-tenure-track faculty members ["Background Facts"]).

Perhaps his radically destabilizing interest in the ontological formation and deformation of bodies, power, and human energy in relation to power is what makes it so difficult to locate Blake in the traditional schema of literary periods, to which we have become too accustomed. It wasn't until the 1950s that he was drafted into the company that became

known as the big six Romantic poets, but that formulation was never, for all kinds of reasons, very productive. We could just as easily read Blake in a seventeenth-century context, in the company of antinomians and Ranters, or in a twentieth-century one, in the company of futurists, vorticists, and anarchists. Literarily, he is in many senses closer to T. S. Eliot or Wilfred Owen than to Charlotte Smith or John Keats; visually, he has far more in common with Pablo Picasso and Edvard Munch than with Thomas Gainsborough and Joshua Reynolds (the president of the Royal Academy, whom he so ferociously despised); aurally, he is close, on the one hand, to Beethoven (an almost exact contemporary) and, on the other hand, to John Coltrane and Ornette Coleman, who ought, at face value, to have nothing to do with him; philosophically, he is far closer to Benedict de Spinoza than to his contemporaries Jeremy Bentham and James Mill; and politically he is the ally of Gerrard Winstanley rather than of Tom Paine. There is no real way, given the traditional schema of literary periods, to think through these kinds of relations, even at the level of the literary, never mind the visual and the aural.

The great theme running through Blake's work is his engagement with the ontological capacity of empire, its drive to organize time and space and to situate human bodies in relation to them in order to most productively tap into and devour human energy—and, of course, he engages with the resistance to that power, the refusal of those forms of organization, temporality, subjectivity, and, indeed, history. Blake's interest in what I have elsewhere called "impossible history" has precisely to do with his refusal to accede to the demands of the normative history determined by, and tied to, the ontological dispositions determined by power, and by the power of global empire above all: the normative history that structures and defines our understanding of the past by framing it in terms of the conceptual and ideological categories

appropriate only to a particular mode of existence—the one we are confronted with today. The struggle between powerful ontological dispositions of human energy and the continual resistance to them has been carried on from the fifteenth century to our time, though it intensified during the great transformations that took place during Blake's lifetime. We need an alternative way of thinking through the history of the possible and the impossible, a different way of accessing the past, and a different way of understanding our own temporality and historicity as well.

If I have focused on Blake in this context, then, it is not because of my interest in him on his own terms but rather for what his refusal of historical and periodizing norms teaches us about history and periodization themselves. His work pushes us to consider the processes of imperial investment in human energy—rather than other modes of energy, from whale oil to nuclear power—and how those processes and their accompanying forms of ontology and power (and, always, the resistance to them) define and structure history and periodization, including literary history and periodization.

Blake's example suggests the need to rethink the categories of literary (and other forms of) periodization in a way that can clarify and bring to the surface the mystified imperial investment in human energy during the overarching transformation running from the fifteenth century to the twenty-first. For all that we have heard of the long eighteenth century and the long nineteenth (formulations

that have fashionably come to define and contain, instead of being defined and contained by, literary studies), we ought, perhaps, to start paying closer attention to what Giovanni Arrighi identified as the long twentieth century—that is, the age of capital not merely as a world system but as a system that made the world recognizable *as* a world by globalizing it, largely in the pursuit of more and more efficient modes of devouring human energy, irrespective of the price paid by humanity. And in that long, overarching period we will find and connect together acts of resistance, works at odds with their times, and writers and artists who refused to go along with the triumphant march of universal empire.

Here, then, is a way to reconceptualize literary history, in terms of the shifts and dislocations of, and moments of resistance to, the extraction of human energy by global empire in the long twentieth century: a century that has outlasted its time and carried on into ours.

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Oil Spills

MICHAEL ZISER

Although coal and oil are chemically similar and equally significant in the modernization of the West, their geologic and historical particularities have produced radically different meanings in culture and the arts. The mining of coal, which must be brought by brute force from seams buried far below the ground, epitomizes the zero degree of labor that so fascinated many nineteenth-century intellectuals and underscores the ultimate dependence of even an advanced industrial society on the input of *human* energy. Little wonder that many of the most profound depictions of physical labor (Émile Zola's *Germinal* [1884], Baldomero Lilo's *Sub terra* [1904]) and of the politicization of labor (Upton Sinclair's *King Coal* and *The Coal War* [1917, 1976], George Orwell's *The Road to Wigan Pier* [1937], David Peace's *GB84* [2004]) emerged from the pit. Oil, by contrast, is a liquid that in the classic scenario flows to the surface almost of its own accord, gushing out in all directions and proposing an entirely different relation among labor, consumption, and the body. Once struck, oil returns so much more energy than is required to produce it that it becomes an effectively costless substitute for human and animal labor. A "free gift of Nature to capital" far exceeding what Marx (and other nineteenth-century economists) thought it possible for a "raw material" to contribute to economic production, it would seem to justify almost any degree of fetishization (745). At present, oil dominates a fossil-fuel economy that releases the energy equivalent of a quarter sun to the earth every day, commanding huge portions of the economic and political domain in the process. Oil fortunes, often disconnected from the socializing constraints that characterized older forms of labor-based wealth, likewise contribute to a new, looser set of possibilities governing the relation between the arts and literature and the subtend-

ing economic drivers. As a huge technological leap, ubiquitous commodity, basis for new forms of wealth and power, and pervasive infrastructural context for cultural production, oil is aesthetically and ideologically excessive.

The earliest modern oil texts, like John J. McLaurin's *Sketches in Crude-Oil* (1896), a somewhat manic omnium-gatherum history of American oil exploration in the nineteenth century, foreground the adventure of exploration in a return to the mineral imperialism associated with earlier forms of resource colonialism. The film and television industries in particular have emphasized this dimension, regularly translating complex narratives about the dawn of the oil age into more conventional frontier dramas of primitive accumulation. George Stevens's film adaptation (1956) of Edna Ferber's *Giant* (1952), for instance, preserves much of Ferber's deeply researched detail concerning the transition from a sun-based economy (cattle) to a fossil-fuel one, but it also structures itself around the oil strike as a symbolic masculine possessive climax in a way that belies Ferber's primary interest in complex side effects and aftereffects. Likewise, Paul Thomas Anderson's brilliant film *There Will Be Blood* (2007) fixates on the ferocious exertion of the will required to "bring in a well," an emphasis largely absent from its source, Upton Sinclair's *Oil!* (1927). Sinclair's novel is relatively uninterested in the founding oilman; it focuses instead on the son, who represents the second, inheriting generation of oil wealth. Sinclair cannily saw that the greatest significance of oil lay not in the way it reiterated a classic pioneer story but in the unexampled consequences of the effortless wealth it brought: the changing landscapes created by the automobile and its necessary infrastructure; the tilt in sexual mores that the car allowed, especially to

young women; the erosion of the traditional labor movement in a world ruled by a new logic of resource production and consumption; and the connection between oil-based mechanical reproduction and contemporary forms of mass media (especially print, radio, and film). This last association, established in the novel through plot points involving the Hollywood film industry and radio evangelism, is the most significant thing Anderson preserves from Sinclair: in the movie, the link is made through reflexive allusions to the history of silent film and to the filmic medium itself. The mechanical reproduction of mass culture, which so exercised key mid-century cultural theorists like Walter Benjamin and Theodor Adorno, is exposed at moments like these as something that is rooted not merely in a vague "rise of the machine" but, more fundamentally, in the development of a modern oil economy that drove the industrial and culture industries alike.

Oil is not, of course, a merely American phenomenon; many more nations than can be covered here have their own traditions of oil narrative, often involving their colonial holdings and their postcolonial spheres of influence. Of texts that emerge from within the major oil-producing powers, the most influential by far is Abdelrahman Munif's five-book, Arabic-language epic *Cities of Salt* (*Cities of Salt*, *The Trench*, *Variations on Night and Day*, *The Uprooted*, and *The Desert of Darkness*). Written by a former oil engineer whose Saudi citizenship was revoked because he criticized the alliance struck between Ibn Saud and foreign governments and corporations, Munif's quintet details, from the perspective of the Arab nonelites caught up in it, the rapid conversion of nomadic Bedouin culture into a subaltern modernity with the discovery of the Ghawar oil field and the construction of the Ras Turana shipping port in the early 1950s.

Oil production has seeped into literary history in an even more direct (if somewhat less obvious) fashion. Jennifer Wenzel has

noted the ways in which contemporary "world literature"—particularly Nigerian writing—follows closely in the wake of petroleum development, to the point that the organizations granting the international prizes that are often a critical rung of the ladder for new writers from former colonies are funded and staffed by oil companies, which have, according to Wenzel, a stake in seeing these corners of the world represented as less cosmopolitan and more benighted than the biographies of many of the writers would suggest. Hence the notice given, for example, to the ostentatiously "rotten" English of Amos Tutuola's *The Palm-Wine Drinkard* and to the "animist realism" of the London-bred Ben Okri.

During the same period that the production of oil was taking on a foreign and primitive cast, its consumption in the United States was becoming the site of an alternately ecstatic and apocalyptic *jouissance* accelerated in the postwar period by huge national investments in the interstate highway system and by the accompanying white flight to car-dependent suburbs. The golden age of the road movie began with Peter Fonda's grim tale of gasoline-powered liberty, *Easy Rider* (1969). Copycat films, like *Vanishing Point* (1971) and *Two-Lane Blacktop* (1971), kept the fetishistic treatment of the combustion engine while eliding much of the social critique, paving the way for the purely recreational and comedic road movies of the 1980s. In *The Cannonball Run* (1981), rebellion is directed only against the fifty-five-miles-per-hour speed limit imposed as an austerity measure after the oil shocks of the 1970s, and Jean Baudrillard's *America* (1986) might, if one credits oil's role in producing the postmodernist emphasis on the detachment of signification from its material foundations, be best historicized as a byproduct of the oil glut of the mid-1980s, when prices fell precipitously from their late-1970s highs. The apotheosis of this trend is *Mad Max II: The Road Warrior* (1981), in which postapocalyptic bandits

dressed in S-M leathers both husband and squander diminishing supplies of gasoline.

Since the 1970s, the excessiveness of oil has been associated not solely with wealth but also with pollution and, most recently, climate change. As Gerry Canavan has begun to document, the oil shocks of 1973 and 1979, together with the rising profile of the modern environmental movement, helped inaugurate a new strain of dystopic futurism attested in novels like Peter Brunner's *The Sheep Look Up* (1973) and J. G. Ballard's *The High-Rise* (1975). Later novels, as well as recent documentaries and feature films, have taken up this pessimistic vision of oil-induced apocalypse under the specter of climate change and high-tech imperial warfare (Werner Herzog's *Lektionen der Finsternis* [1992], Cormac McCarthy's *The Road* [2006], and Reza Negarestani's *Cyclonopedia* [2008], to name but a few of the best). All of these ask us to acknowledge the connection between the oil age and

its problematic surpluses—economic, political, environmental, sexual, aesthetic, and even religious—and to consider the human effects of its eventual passing.

NOTE

I would like to thank the participants in my spring 2010 graduate seminar on petrocultures, Will Elliott, Kelley Gove, Angie Lewandowski, Josef Nguyen, and George Thomas. They were the discoverers, producers, and refiners of many of the ideas outlined above.

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Literature and Energy Futures

IMRE SZEMAN

This special Editor's Column asks what might happen if we frame cultural and intellectual periods and the literatures they encompass not in terms of movements (e.g., modernism), nations (*British* modernism), or centuries (eighteenth, nineteenth, twentieth . . .) but in relation to dominant forms of energy. A crude, perhaps too literal form of materialism, but a suggestive one nevertheless, and not just in the *aha!* manner of all thought experiments. A periodization organized around energy draws much needed attention to one of the key conditions of possibility of human social activity: a raw input—energy—whose significance and value are almost always passed over, even by those who insist on the

importance of modes and forms of production for thinking about culture and literature.

Energy enables; different forms of energy enable differently. And energy (or its lack) also produces limits. The physicist Jacob Lund Fisker notes that the growth and development of human populations over the past two centuries "is often attributed to such things as state initiatives, governmental systems and economic policies, but the real and underlying cause has been a massive increase in energy consumption. . . . Discovering and extracting fossil fuels requires little effort when resources are abundant, before their depletion. It is this cheap 'surplus energy' that has enabled classical industrial, urban and economic development" (74). If we now think about energy more than ever, it is because we have started to worry about the implications

of its limits or impending lack, even while we continue to indulge in the fiction that energy surplus, an unrepeatably historical event, will define daily life on into the future, without major change or crisis. The fiction of surplus in which we subsist shapes not only the belief that there will always be plenty of energy to go around but also the complementary idea that easy access to energy plays (at best) a secondary role in history by comparison with human intellect and the adventure of progress; it is not just energy that constitutes a limit but also our present understanding of its social role and significance.

We expect literature to name the governing ideologies of an era, whether by announcing them in its narrative and formal contradictions and antinomies or by attempting to puncture them (however incompletely) through formal innovation, subject matter, and so on. It is startling, then, to realize that our fiction of energy surplus appears to be so completely shielded from view as to be hardly named in our literary fictions at all. A periodization organized around energy assembles literatures in new configurations: modernism, for instance, either becomes a small subset of a long period of oil literature (if we imagine this period as being kicked off by the “discovery” of oil in the United States in 1859) or anticipates and participates in the birth of the hegemony of oil (the decision by Winston Churchill, first lord of the admiralty, at the outset of World War I that the British naval fleet should be powered by oil from the Middle East instead of coal from Wales). Such a periodization fails to capture, however, the almost complete absence of oil as subject matter (direct or allegorical) in the literature written during the era when it is dominant. The exceptions are so few as to be notable, as Amitav Ghosh points out in his landmark essay “Petrofiction.” Upton Sinclair’s *Oil!* (1927), Abdelrahman Munif’s *Cities of Salt* quintet (1984–89), Patrick Chamoiseau’s *Texaco* (1992), and Reza Negarestani’s science fiction codex *Cyclonopedia* (2008) are

prominent examples of the small genre of oil novels, which seems not to be growing in size despite the almost daily appearance of oil in the news and its presence everywhere in our lives (as plastics, fertilizers, fuel for vehicles, waste washed up on beaches, etc.).¹

The dearth of oil in contemporary fiction is not a structuring absence that haunts the whole of literature—an absence inescapably present through negation (standard tricks of the literary-critical trade won’t save us here). It seems to me that there is a simpler and blunter explanation: instead of challenging the fiction of surplus—as we might have hoped or expected—literature participates in it just as surely as every other social narrative in the contemporary era. Ever more narrative, ever more signification, ever more grasping after social meaning: what literature shares with the Enlightenment and capitalism is the implicit longing for the plus beyond what is. The fact that literature in the era of oil has little to do with oil doesn’t negate the value of energy periodization. On the contrary, one of the most valuable functions of this schematic in our present moment—or, indeed, perhaps even in the whole history of literature—is to bring to light a foundational gap to which we have hitherto given little thought. This gap is the apparent epistemic inability or unwillingness to name our energy ontologies, one consequence of which is the yawning space between belief and action, knowledge and agency: we know where we stand with respect to energy, but we do nothing about it. The perverse outcome of the drama of individual and collective maturity in which we have placed our hope since Kant is a perpetual present shaped by inaction and bad faith.

This is where we find ourselves at the present. What about literature and energy futures? If our primary interest in literature’s relation to energy lies in periodization, it makes little sense to cast about for what might come after the present phase of oil literature. After all, how can one ever determine things to

come, especially with respect to literary style or form? Yet while predicting movements to come or even national literatures to come might seem meaningless, prediction becomes oddly productive when one names literary periods in relation to energy. We can't help imagining that what come after oil are newly dominant forms of sustainable energy (wave, wind, and solar power or more extensive uses of nuclear energy) or a fantastic new type we have, as yet, envisioned only in science fiction (the unobtainium of James Cameron's *Avatar*). In these futures, energy is clean, no longer a threat to the environment, and available in indefinite or even limitless quantities. Even more important, the switch to it miraculously does not threaten our way of life: we can continue to be who we are now. The possibility that, say, a solar literature might take the place of oil literature would resolve the present gap between knowledge and action. In this hope, the promise of the future underwrites and legitimizes the bad faith of the present. What makes speculating about energy futures productive is that it highlights all the more powerfully the political fantasies in which literature currently indulges.

What if after energy surplus comes deficit? How might literature respond to a future of less rather than more? We can only speculate, for even in the genre that deals with the future—science fiction—there are strikingly few examples of cultures of less. In much of science fiction (e.g., the space opera), energy is abundant, often because new sources were discovered outside the earth, as was Cameron's fantastical fuel. Lack of energy is found typically only in postapocalyptic scenarios—cautionary tales about where our fiction of surplus might lead. In both contexts, literature has disappeared, whether into the screen

or the hologram or because it has been rendered secondary to the difficult task of staying alive. Contemplating energy futures prompts us to reflect on what we desperately need in our literary present: narratives that shake us out of our faith in surplus (there will always be more; things will always be better), not by indulging in the pleasures of end times or fantasies of overcoming energy limits but by tracing the brutal consequences of a future of slow decline, of less energy for most and no energy for some—a future that might well have less literature and so fewer resources for managing the consequences of our current fictions.

NOTE

1. Peter Hitchcock's "Slick: Geocultures of Oil in Fiction" is a provocative and compelling analysis of petrofiction in film and literature.

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SYLVA WYNTER

NOVEL AND HISTORY, PLOT AND PLANTATION

First let us define our terms. What, in our context, is the novel? What, in our context, is history? What is our context? George Beckford, a Jamaican economist writes:

"In America, the locus of the plantation system is the Caribbean. Indeed, this region is generally regarded as the classic plantation area. So much so that social anthropologists, have described the region as a culture sphere, labelled Plantation America."

The Caribbean area is the classic plantation area since many of its units were 'planted' with people, not in order to form societies, but to carry on plantations whose aim was to produce single crops for the market. That is to say, the plantation-societies of the Caribbean came into being as adjuncts to the market system; their peoples came into being as an adjunct to the product, to the single crop commodity — the sugar cane — which they produced. As Eric Williams has shown, our societies were both cause and effect of the emergence of the market economy; an emergence which marked a change of such world historical magnitude, that we are all, without exception still "enchanted", imprisoned, deformed and schizophrenic in its bewitched reality.

Now, the novel form itself, according to Goldmann, came into being with the extension and dominance of the market economy, and "appears to us to be in effect, the transposition on the literary plane, of the daily life within an individualist society, born of production for the market." The novel form and our societies are twin children of the same parents. No wonder Miguel Angel Asturias a Plantation novelist of a Plantation Republic, Guatemala, wrote in unbelieveing despair, after the C.I.A.-backed overthrow of the legally elected Government of Arbenz: "These things that happen? . . . It's best to call them fiction!" History, then, these things that happen, is, in the plantation context, itself, fiction; a fiction written, dominated, controlled by forces external to itself. It is clear then, that it is only when the society, or elements of the society rise up in rebellion against its external authors and manipulators that our prolonged fiction becomes temporary fact. The novel *New Day* shows not one, but two of these historical collisions, and links them, suggesting in fiction, their factual connection.

The epic form, Lukacs remarks, knows nothing of questions. The hero is essentially at one with the values of his world. With the novel form, the rupture of the hero and the now inauthentic values of his world begins. The novel form is in essence a question mark.

In *New Day*, the second, and younger hero, the hero whom we can term the 'positive hero' as distinct from Davie the earlier and 'problematic hero' asks his great Uncle, the narrator, a question which is crucial to the novel and to our discussion.

"Tell me Uncle John. You have spoken of the old things, but you have never given me an opinion. We have been taught in our history classes that Gordon and Bogle were devils, while Eyre was a saint who only did what he did because it was necessary. You knew both Gordon and Bogle. Were they as bad as they were painted?"

The old Man's answer is evasive and ambivalent. It is part and parcel of the evasive ambivalence of the 'ideology' of gradualism which was the ideology of the more idealistic middle class movement summed up in the People's National Party, a party which emerged after the upheavals of the Jamaican people in 1938. In fact it is clear that Garth himself is a thinly disguised portrait of Norman Washington Manley. On the negative side one could dismiss this movement as Ken Post does, by calling it merely the 'middle-class backlash' against the threatened takeover by varied and manifold popular forces. But in the context of plantation societies like ours, the usual terms cannot be applied without examination.

To evaluate the old man's answer, we must examine the basic significance of the question. The question he is asked is one of historical fact. Yet, from the way Garth asks the question we see that the history taught in the schools is a history based around a Manichean myth. Bogle and Gordon are devils. Eyre is a saint. This was the version of history taught by the forces that upheld the plantation. And the forces that upheld the plantation were the forces of the market. These forces, the forces of the *emporium*, (*emporio*) (to borrow Austria's pun) are the forces of the *imperio* — the Empire. The emporialist forces and the imperialist forces are one.

Bogle, Gordon and Eyre are personalities, figures caught in a clash and conflict that are not even primarily of their making. For they are caught in a collision and a clash that was inherent and in-built, and still is, between the plantation system, a system, owned and dominated by external forces, and what we shall call the *plot* system, the indigenous, autochthonous system. Miguel Angel Asturias defines this clash as the struggle between, "... the indigenous peasant who accepts that corn should be sown only as food, and the *creole* who sows it as a business, burning down forests of precious trees, impoverishing the earth in order to enrich himself."

Basically then a struggle between the indigenous man still involved in a world of what Marx terms *use value* where a product is made in response to a human need; and the market economy world with its structure of *exchange-value* where the product is made in response to its profitability on the market. In the world of use Value, human needs dominate the product. In the world of *exchange value* the product, the thing made, dominates, manipulates, human need.

Now, as Goldmann argues, the novel form is, "among all literary forms, the most immediately and directly linked to the economic structures in the narrow sense of the term, to the structure of exchange and production for the market." But because the writer, the artist, is by the very nature of his craft linked to the structure of use-value statements, the impulse of creation thus being directed by human needs, he remained as a hangover in the new form of societies. The novel form reflects his critical and oppositional stance to a process of alienation which had begun to fragment the very human community, without which the writer has neither purpose, nor source material, nor view of the world nor audience. The novel form, a product of the market economy, its exchange structure, its individual here set free to realize his individuality by the 'liberal' values of individualism, linked to the very existence of the market system, nevertheless, instead of expressing the values of the market society, develops and expands as a form of resistance to this very market society. In effect, the novel form and the novel is the critique of the very historical process which has brought it to such heights of fulfilment.

A House for Mr. Biswas whilst it celebrates the talent of its author, and awards him a recognized place among the elite world, is nevertheless a profound indictment of a deprived world in which, to realize his being, Biswas must alienate himself from an impossible community, distorted by phantasmagoric circumstance, to shelter in a jerry built house; and a Prefect car. The individual, dreamt of in the liberal market economy, as being now totally sovereign and free, is shipwrecked by the later developments of this structure which prohibits his fulfilment; and leaves him huddled in a house, escaping from civilization; a Robinson Crusoe clinging to his island for survival through escape from the outside world. His victory, like ours, is pyrrhic.

The 'problematic hero' is the corollary of the problematic novel. This problematic hero is exemplified in Davie; and to some extent, in his father. For like Okwonko in Chinua Achebe's *Things Fall Apart*, old father Campbell, clinging to his belief in God's order and in the inevitability of British justice is shot down by British soldiers, defending the market economy, i.e. the plantation, against the challenge of the peasant farmers and the agro-proletarian workers. To make the world safe for the market economy, families are broken up (As in James Ngugi's, *Weep Not Child*) and indeed, in *New Day*. Hundreds

are shot down. The techniques of terror which will be brought to perfection under Hitler and Stalin against European, in Europe itself, are perfected in the *emporium-emporium*, plantation units. Vic Reid in *New Day* describes the actual historical fact of Colonel Hobbs, a gentle man, who grew roses up at the barracks at Newcastle, getting nine 'rebels' to hang each other in a chapel at Fonthill, ordering thirteen others to dig a trench, and then having the soldiers shoot them into the mass grave. Hobbs had a problem of finding enough quicklime to sanitarily dispose of the bodies. He had another problem too. Afraid of being mocked at for his natural inclination to clemency for the rebels, he felt he had to match and outdo in terror, his fellow officers. He committed suicide after.

In James Ngugi's '*Weep Not Child*', the hero confronts and is tortured by the English settler-farmer who grows pyrethium for the market.

The reaction of the planters in 1865 to the death of a handful of the manager colon-creole class who are killed by Bogle and his followers is one of outrage, not only at the thought of blood-shed but at the threat to the plantation, which was to them the very core and seat of the structure of their 'civilized' values. It is not accidental that H. G. deLisser, a colon — creole writer who dealt with 1865 in a novel called *Revenge* sees the battle between the plantation forces and Bogle's forces as a battle between light and darkness. Bogle's followers watch anxiously for a sign from heaven, after a Cecil B. DeMille type ritual ceremony. Joyce, the English plantation heroine, watches anxiously too, as she observes "a great mass of black clouds ... moving slowly across the sky ... It seemed as though the inky mass were gaining inch by inch on the shining space (i.e. lit up by the moon) ... were menacing it with an inevitable doom of obliteration; it was like a huge formless monster advancing slowly but with pitiless tread towards a thing of beauty which it had doomed to extinction..."

The symbolism is quite clear. This passage illustrates what Ramchand, paraphrasing from Fanon has called 'the terrified consciousness' of the Whites. But I am trying to shift from the ground of race which is but one factor in the equation, to the ground Asturias defines. Bogle's followers are men who predominantly sow for food, secondarily for the market. Thus, use value determines their structure of values. Joyce belongs to the plantation system, the exchange structure; and 'the thing of beauty' whose extinction she fears is the complex of values by which she lives; values which have their positive aspect; for example the hero shows a sense of responsibility, thoughtfulness etc.; but values too which bolster their dominant and exploitative position.

Bogle's followers, according to deLisser, cheer wildly when the black clouds cover the moon. It is a sign that they will be helped by

God to purge wickedness from the land; and the white creole hero's mother is in no doubt that it is her race, class and their structure of values that are to be purged out of the land. In both deLisser's novel and in Vic Reid's, the basic confrontation is between the plantation and the plot, and the structure of values which each represents. I suggest that the conflict and clash that has taken place between two defined groups in this conference, between those who defend the 'autonomy' of the 'civilized' highly educated artist; and those who defend the claims of the community and the folk, has little to do with racial division and everything to do with those who, like Joyce, defend the values of the plantation and those who like Bogle, represent the values of the plot. Perhaps most typical of all is the 'silent majority', ambivalent like *New Day's* narrator-hero between the two. For if the history of Caribbean society is that of a dual relation between plantation and plot, the two poles which originate in a single historical process, the ambivalence between the two has been and is the distinguishing characteristic of the Caribbean response. This ambivalence is at once the root cause of our alienation; and the possibility of our salvation.

To explain briefly the plantation-plot dichotomy we are compelled to make generalizations.

1. Before the unique Western experience which began with the discovery of the New World, all societies of mankind existed in what Senghor describes as dual oscillatory process in which Man adapts to Nature, and adapts Nature to his own needs.
2. But with the discovery of the New World and its vast exploitable lands that process which has been termed the 'reduction of Man to Labour and of Nature to Land' had its large scale beginning. From this moment on Western Man saw himself as 'the lord and possessor of Nature.' The one-way transformation of Nature began. Since man is a part of Nature, a process of dehumanization and alienation was set in train. In old societies with traditional values based on the old relation, resistance could be put up to the dominance of the new dehumanizing system. In new societies like ours, created for the market, there seemed at first to be no possibility of such a tradition.
3. But from early, the planters gave the slaves plots of land on which to grow food to feed themselves in order to maximize profits. We suggest that this plot system, was, like the novel form in literature terms, the focus of resistance to the market system and market values.
4. For African peasants transplanted to the plot all the structure of values that had been created by traditional societies of Africa, the land remained the Earth — and the Earth was a goddess; man used the land to feed himself; and to offer first fruits to the Earth; his funeral was the mystical reunion with the earth. Because of this traditional concept the social order remained primary. Around the growing of yam, of food for survival, he created on the plot a folk culture — the basis of a social order — in three hundred years.

This culture recreated traditional values — use values. This folk culture became a source of cultural guerilla resistance to the plantation system.

But since he worked on the plantation and was in fact the Labour, land and capital, he was ambivalent between the two. After the abolition of slavery the slave-turned-peasant, grew crops both to feed himself, and to sell on the market. The plantation, dependent on mass-labour, was determined to use their ownership of the land to compel him back to work; and to his role in the structure of exchange value. The plantation was the superstructure of civilization; and the plot was the roots of culture.¹ But there was a rupture between them, the superstructure was not related to its base, did not respond to the needs of the base, but rather to the demands of external shareholders and the metropolitan market. The plantation was run by the manager class, the colon class. This class and the labouring indigenous class faced each other across barricades that are in-built in the very system which created them. That is why the clash in 1865 and the clash in 1938 and the future clashes are unavoidable unless the system itself is transformed.

In 1865, in the historical records, the rebels as they killed Charles Price, a black bus contractor shouted back to his claim that he was black: “You are black but you have a white heart!” Several white doctors were allowed to escape, unhurt. There is, as Barrington Moore points out, a logical and rational basis to peasant resistance to the market economy. “A white heart” aptly describes the man whom Miguel Angel Asturias calls “the man who sows for profit.” The man involved in a structure of exchange value — which is all of us. Our place in the confrontation is largely determined by whether we accept or reject this structure.

Our appreciation and revaluation of the folk is not therefore, the heroic folkish mythology of a Hitler. For we accept folk culture as a point outside the system where the traditional values can give us a focus of criticism against the impossible reality in which we are enmeshed. But there is no question of going back to a society, a folk pattern whose structure has already been undermined by the pervasive market economy. Robert Serumaga shows this in *Return to the Shadows*. Joe, running away from yet another army takeover, goes home to his mother, to tie himself back to the umbilical cord. But his mother has been raped; and his young cousins raped and murdered by soldiers who are the representatives of the large central force which monopoly capitalism, with or without state intervention, must, by the logic of its existence, have at its disposal, to crush any dissent from its totalitarian power. The plantation system which, under the liberal

¹ The Custos Baron van Ketelhadt, one of the principal figures of 1865 defended the needs of sugar against beet, by claiming that the sugar estate was the centre of civilization in the island.

Free Trade rhetoric, the rhetoric which freed the slaves, compensated the masters and set the slaves free in a world dominated by market relations, to fend naked for themselves, was the first sketch of monopoly capitalism. George William Gordon, we suggest, wheeling and dealing, buying land, speculating, owning a newspaper, acting as a produce dealer, speaking vehemently in the House of Assembly, claiming the rights of Magna Carta as a freeborn son of Jamaica, embodied the liberal rhetoric and took it seriously. When he became a threat to the emporio/imperio dominance he was hanged by the *reality* of a totalitarian monopoly system. The out-cry in England was made by Liberal elements who could in England enjoy the freedom offered by liberal free trade politics. But Carlyle saw clearly that plantations were made for lazy Negroes to learn the gospel of work under the spur of the whip. No one dissented when Crown Colony Government was imposed, and the Assembly discarded. The Assembly like Gordon was a piece of liberal rhetoric which the brute reality of the system could no longer afford. Bogle and his followers were taught a lesson; in the same way as Indian peasants rioting in Bengal in the 1860's against having to grow indigo as a commercial crop for the English, had to be taught a lesson. The world had to be kept safe for the market economy.

History, to help in this task had to be distorted. The myth of history was used by the plantation to keep its power secure. It was necessary that Gordon and Bogle should be painted 'black'; and since "remembrance of things past can give rise to dangerous insights" much of the history was suppressed. As the old man in *New Day* complains:

"They do not know what we have seen, for no place has been found in their English history books for the fire that burnt us in Sixty Five."

He tells his grandnephew Garth, some of it; and this consciousness of the past, and of his grandfather, Davie's, role in it, causes Garth to see himself as the new dedicated elite leader, of the masses. But his historical apprehension will be different from theirs. For he still asks "Were they as bad as they were painted"? The history he has been taught is the history of the plantation, the official history of the super-structure; the only history which has been written.

But the plot too has its own history. A secretive history expressed in folk songs "War down a Monamds, the Queen never know, War O War O War O," and the old Anglo-Indian General Jackson hunting down the rebels in a tragi-comic folksong:

Oh General Jackson

Oh General Jackson, you kill all the black men dem.

In the *kumina* cult ceremony, Bogle appears through an initiate as an ancestor-god. When asked in 1965 about Bogle, Morant Bay people answered about Bogle and Gordon:

'Is Justice they were seeking! Justice for the people.'

Again as Moore points out, there is a profound peasant sense of justice which is separate from the abstract concept of the law of the plantation. The law of the plantation is based on the rights of property. The justice of the peasant is based on the needs of the people who form the community. There is hardly an aspect in which there is not this dichotomy of attitudes. No aspect in which the attitudes and values of the dominant 'creole-colon plantation structure,' is not used in an essentially exploitative relation to the indigenous plot values.

The clashes of 1965 and 1938 are episodes in a historical continuum. It is significant that deLisser sees 1865 as an isolated episode told through the personal relations of three white characters — the hero, the heroine, and the villain who joins with the black "against his race and class" in order to win Joyce, but who dies protecting her from an "unmentionable horror" in the end. The real conflict is banished and suppressed even though deLisser senses the continuing unease in his society and writes his book as warning to the dark clouds *not* to cover the moon.

Reid on the other hand caught up in the release of 1938 and the growth of national feeling, wrote his novel to restore the written past to a people who had only the oral past; and to the middle class who thought, as Naipaul did, that nothing was created in the West Indies and therefore there was no history. Reid wanted to prophesy the future by placing his then present in the context of an almost epic past. In the first part of his book when he deals with the problematic hero Davie who fails (he goes off to the Morant Cays and creates a community, which is broken up once his son establishes wage scales to respond to the market business of shipping bananas). But Davie died before, that, having lost Lucille Dubois, his wife through his new obsession. His quest then turns out to be in vain; and finally inauthentic, as with all the great novels. He dies in a hurricane, imprisoned under the weight of a tree.

The second part of the book with its 'positive' hero fails because Garth is made to bear the weight of an expectation that can never be realized. Whilst the first part of the book parallels and patterns the structure of its society; and reflects its failure to satisfy human needs, the second part, fails by ignoring the fact that a change in the superstructure of the plantation, a new Constitution, even Independence, were changes which left the basic system untouched; and which only prolonged the inevitable and inbuilt confrontation between the plantation and the plot; between the city which is the commercial expression of the plantation and its marginal masses, disrupted from the plot; this is the conflict and the clash that we have seen reflected here in this conference, on different levels of awareness, between those who justify and defend the system; and those who challenge it.