

Wasting Away

How Capitalism Lays Waste to the Web of Life, and Why It Can't Stop

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For nearly a century, the Environmental Imaginary has been obsessed with resource scarcity. But what if the twenty-first century's pivotal biophysical contradiction turns not on resources, but on waste?

Marco Armiero puts this question to us in *Wasteocene*.² If -cene fatigue has set in, if the -cene mania seems to produce ever more banal neologisms, bear with me.³ This one is different.

Wasteocene illuminates an essential capitalist logic: every moment of capital accumulation requires the political creation of “sacrifice zones... [of] wasted people and places.”⁴ That *wasting* implicates far more than pollution and facile discussions of inefficiency; it signifies the absurd and horrific logic of squandering and devaluing the wealth of human and extra-human life under the law of value. Armiero's waste is a dialectical process, a relation, not simply an object but a terrain of class struggle and exploitation.

Armiero's provocative thesis is nothing less than a frontal assault on the Popular Anthropocene and its imperial Environmental Imaginary.⁵ He is among the few dissidents who understand that the Anthropocene is not merely a fashionable term; it's an ideological

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² M. Armiero, *Wasteocene* (Cambridge: Cambridge Univ. Press, 2020).

³ F. Chwalczyk, “Around the Anthropocene in Eighty Names,” *Sustainability* 12(11, 2020), 44-58.

⁴ Armiero, *Wasteocene*, 2, 10.

⁵ The literature is vast. Major expressions of the Popular Anthropocene include Clive Hamilton, *Defiant earth: The fate of humans in the Anthropocene* (New York: John Wiley & Sons, 2017); D. Chakrabarty, *The climate of history in a planetary age* (Chicago: University of Chicago Press, 2021); D. Wallace-Wells, *The Uninhabited Earth* (New York: Penguin, 2019); J.R. McNeill & P. Engelke, *The Great Acceleration* (Cambridge, MA: Harvard University Press, 2016). Searing indictments include: T.J. Demos, *Against the Anthropocene* (New York: Sternberg Press, 2017); C. Bonneuil and J.-B. Fressoz, *The Shock of the Anthropocene* (London: Verso, 2016); J.W. Moore, “Confronting the Popular Anthropocene,” *New Geographies* 9(017), 186-191; idem, “Power, Profit and Prometheanism, Part I: Method, Ideology and the Violence of the Civilizing Project,” *Journal of World-Systems Research* 21(2, 2022), 415-426.

battleground. He calls it a “narrative struggle.”⁶ It’s an apt turn of phrase. It can remind critical scholars that we are not quibbling over language; we are debating patterns and turning points in world history. This is true even and especially when critical scholars ignore those histories. Everything about our climate politics is informed by our narratives. The stories of climate crisis driven by too many people, too much carbon dioxides, too much consumption... these favor politics starkly different from an account of the climate crisis driven the Capitalocene, Wasteocene and the capitalogenic logic of death and devaluation.

The Wasteocene Against the ‘Environmentalism Of The Rich’: From Spaceship Earth to the Popular Anthropocene

How many remember *Spaceship Earth*, the Green super-metaphor of the 1970s?⁷ Like *Spaceship Earth*, the Anthropocene and cognate arguments deploy Good Science to convert the messy and contentious politics of climate crisis into techno-scientific management problems – an ambition to “solve” the climate crisis through a new mode of production dominated by the super-rich and governed by the international rule of experts.⁸ The Popular Anthropocene – and the wider eco-industrial complex of Green parties, universities, government ministries, NGOs and Foundations in which it’s embedded – is a textbook case of an anti-politics machine.⁹ Like so-called Development in an earlier era, the Anthropocene expresses an imperialist class politics through allegedly apolitical arguments for planetary management, one that insists the answers can be found in Good Science and “earth-system governance” rather than a radical extension of democracy.¹⁰

Armiero has no patience for these falsifications. The *Wasteocene* lays bare the bourgeois conceit that pollution and toxification – including atmospheric carbonization – are “environmental” consequences of inefficient economic management. The poisoning of life and land and sea, Armiero argues, is not a “bug” in an otherwise optimal operating

⁶ Armiero, *Wasteocene*, 23.

⁷ R.B. Fuller, *Operating Manual for Spaceship Earth* (Carbondale: Southern Illinois University Press, 1969); S. Höhler, *Spaceship earth in the environmental age, 1960–1990* (New York: Routledge, 2015); J.W. Moore, “Our Capitalogenic World: Climate Crises, Class Politics & the Civilizing Project,” *Studia Poetica* (forthcoming).

⁸ J.W. Moore, “Global Capitalism in the Great Implosion,” foreword to William I. Robinson, *Can Global Capitalism Endure?* (Atlanta: Clarity Press, 2022), ix-xxiv.

⁹ J. Ferguson, *The anti-politics machine* (Cambridge: Cambridge Univ. Press, 1990); J.W. Moore, “Beyond Climate Justice,” in *The Way Out of the Climate Crisis* (Vienna: Walther König Press, in press), <https://jasonwmoore.com/wp-content/uploads/2022/08/Moore-Beyond-Climate-Justice-for-website-2022-August.pdf>.

¹⁰ An expressive instance of such managerialism is J.S. Dryzek & J. Pickering, *The Politics of the Anthropocene* (Oxford: Oxford Univ. Press, 2019); for a critique, J.W. Moore, “The Opiates of the Environmentalists? Anthropocene Illusions, Planetary Management & The Capitalocene Alternative,” *Abstrakt* (Nov., 2021), (<https://www.polenekoloji.org/>).

system; it's a *feature*. It's a key consequence, but also an ongoing terrain, of the worldwide class struggle in the web of life.

The lineages of today's Environmentalism of the Rich reach deeply into the capitalist past.¹¹ That past – in stark contrast to the Anthropocene's flight from world history – is not dead, but very much alive.¹² It is a history of waste, that is of pollution and toxification; and it's a history of *laying waste*, of imperial power and militarized accumulation. It's this dialectic that underpins the Wasteocene's world-historical logic of producing “wasted people and wasted places.”¹³

The origins of that logic are found in the rise of capitalism during the long sixteenth century.¹⁴ Golden spikes notwithstanding, it's clear that 1492 was a geobiological watershed. Within a half-century, a capitalist Pangea was created, biologically unifying Old and New Worlds in a fashion unknown since the supercontinent drifted apart 175 millions years earlier. This was the so-called Columbian Exchange.¹⁵ (What a deliciously neoliberal turn of phrase!) Within a century, the Columbian invasions co-produced capitalism's first great climate crisis.¹⁶ The ensuing political, economic, and cultural crises of the “long, cold seventeenth century” were resolved through ramshackle but effective forms of planetary management.¹⁷ It was an audacious climate fix. These not only restructured production and reproduction from Brazil to the Baltic, but crystallized a new geocultural order – capitalism's Civilizing Project – that remade Cheap Nature through an entirely novel trinity: the climate class divide, climate apartheid and climate patriarchy.¹⁸

If the origins of planetary management take shape not in the 1970s, but during the rise of capitalism – think of Iberian botanical imperialism and Evelyn's 1664 call for effective forest management – there is also a middle-run history that centers on American imperialism.¹⁹ It is

¹¹ The phrase is Peter Dauvergne's, *The Environmentalism of the Rich* (Cambridge, MA: MIT Press, 2016).

¹² J.W. Moore, “Anthropocene, Capitalocene & the Flight from World History,” *Nordia* 51(2, 2022), 123-146

¹³ Armiero, *Wasteocene*, 10.

¹⁴ Armiero, *Wasteocene*, 8-9; I. Wallerstein, *The Modern World-System I* (New York: Academic Press, 1974); J.W. Moore, “Nature and the Transition from Feudalism to Capitalism,” *Review* 26(2, 2003), 97-172.; idem, *Ecology and the Rise of Capitalism*, PhD dissertation (Univ. of California, Berkeley, 2007).

¹⁵ A.W. Crosby, jr., *The Columbian Exchange* (New York: Academic Press, 1972).

¹⁶ C.M. Cameron, P. Kelton & A.C. Swedlund, eds., *Beyond Germs* (Tucson: University of Arizona Press, 2015); S.L. Lewis & M.A Maslin, “Defining the Anthropocene,” *Nature* 519 (2015), 171-80.

¹⁷ E.L.R. Ladurie & V. Daux, “The climate in Burgundy and elsewhere, from the fourteenth to the twentieth century,” *Interdisciplinary Science Reviews* 33(1, 2008), 10-24; G. Parker, *Global Crisis* (New Haven, CT: Yale Univ. Press, 2013).

¹⁸ Moore, “Empire, Class & The Origins Of Planetary Crisis,” *Esboços* 28(2021), 740-763; idem, “Power, Profit & Prometheanism.”

¹⁹ J. Evelyn, *Sylva, Or A Discourse of Forest Trees*. 4th edition (London: Arthur Doubleday & Company, 1908 [reprint of the 1706 edition, 1664 original]); T.R. Robertson,

this history that has been thoroughly erased by the Popular Anthropocene.²⁰

Although Environmentalism in the imperialist countries is sometimes regarded as a movement of the political left, recent world history suggests a different interpretation.²¹ Environmentalism has always been an elite affair – even when its American demographic base expanded to include a massively enlarged professional-managerial class (PMC) in the 1970s.²² From the standpoint of the *Wasteocene* and its righteous insistence that the Capitalocene turns workers’ bodies into toxic waste dumps, the point can scarcely be overemphasized. After 1968, “second wave” Environmentalism, especially but not only in the U.S., cared about pollution – but mostly when it spilled on the beaches of affluent Santa Barbara, and virtually never when it came to workers.²³ California farmworkers, Louisiana chemical workers, West Virginia coalminers, New York working class mothers and their children, Black working-class communities across the American South – these were “sacrifice populations” for capital. It was (and remains) a class project ideologically underwritten by the Environmentalism of the Rich. For these Environmentalists, workers were part of the problem – not the solution. For good reason, Lois Gibbs, the working-class Niagara Falls mother who led the struggle at Love Canal in the late 1970s and pioneered the anti-toxics movement, refused to call herself an Environmentalist.²⁴

The Popular Anthropocene bears all the marks of this longstanding Environmental Imaginary. That’s a way of seeing and valuing the web of life that’s distinctive not only in its contempt for workers at home and abroad, generally viewed as “deplorables” (after Hillary Clinton’s arrogant characterization).²⁵ PMC Environmentalists cringed in 2015 then-candidate Trump referred to Mexican immigrants as drug-dealing rapists: “not the right people”; and again three years later when he called Haiti and several African states “shithole countries.”²⁶

The Malthusian Moment (New Brunswick, NJ: Rutgers Univ. Press, 2012); Moore, “The Capitalocene, Part II.”

²⁰ E.g., McNeill & Engelke, *The Great Acceleration*.

²¹ Mark Dowie, *Losing Ground* (Cambridge, MA: MIT Press, 1996).

²² Moore, “Beyond Climate Justice”; P. Walker, ed., *Between Capital and Labor* (Boston: South End Press, 1979).

²³ R. Guha, *Environmentalism: A global history* (New York: Longman, 2000), 69-97; C. Montrie, *A People’s History of Environmentalism in the United States* (New York: Continuum, 2011).

²⁴ R. Gottlieb, *Forcing the Spring*, second edition (Washington, D.C: Island Press, 2005).

²⁵ D. Merica & S. Tatum, “Clinton expresses regret for saying ‘half’ of Trump supporters are ‘deplorables,’” *CNN* (12 September, 2016).

²⁶ J.H. Davis, S.G. Stolberg & T. Kaplan, “Trump Alarms Lawmakers With Disparaging Words for Haiti and Africa,” *New York Times* (11 January, 2018); Time Staff, “Here’s Donald Trump’s Presidential Announcement Speech,” *Time* (16 June, 2015), <https://time.com/3923128/donald-trump-announcement-speech/>.

The Limits to Empire & The Limits to Growth

But Trump was simply saying the quiet part out loud. For the past century – and especially since 1970 – the Environmentalism of the Rich has either agreed with, or failed to oppose, the American Empire’s policy of creating “wasted people and wasted places” across the world and especially in Latin America.²⁷ It’s been robustly anti-immigrant.²⁸ And I can think of no major Big Green organization that condemned, and mobilized against, America’s bloated war-machine and its bloody recovery from the Vietnam Syndrome. Environmentalists may not call Haiti a shithole country, but none of its representatives lifted a finger when Haiti’s democratically elected government, led by Jean-Bertrand Aristide, was overthrown in two successive U.S.-backed coups (1991 and 2004). Nor was Big Green concerned about the violent ecologies of structural adjustment anywhere in Latin America and the rest of the South in the Eighties, a “slow violence” enabled by US-backed Third World fascists.²⁹ Trump’s transgression was to state clearly the conventional wisdom of the American ruling class and its professional-managerial cadres – but without the centrist-liberal hand-wringing that Environmentalists perform when faced with the Empire’s crimes.

Since 1970, the Environmentalism of the Rich has remained silent about – and therefore complicit in – America’s endless wars and the apocalyptic practice of unipolar hegemony. From Vietnam to Iraq to any number of “low-intensity” conflicts and counter-insurgency operations worldwide, the Environmentalism of the Rich has been silent on neoliberalism’s horrific marriage of capital-intensive war and disposable labor, life, and landscapes.³⁰ Nor is this a strictly American phenomenon. Consider the German Green Party’s recent support for massive rearmament – the greatest since the 1930s – in support of NATO expansion.³¹ As the example of Haiti attests – where the world’s first national liberation movements won independence – this imperialist ecology has a long history. The neoliberal moment is just the latest in a five-century history of laying waste to countries that dare challenge the imperial distribution of wealth, power and poverty.

Every great superpower in world history takes the charge of managing that imperial distribution of Cheap Natures. The American

²⁷ Moore, “Beyond Climate Justice.”

²⁸ See, e.g., P.R. Ehrlich, L. Bilderbach & A.H. Ehrlich, *The Golden Door* (New York: Ballantine Books, 1979); one generative discussion is L.S. Park & D. Pellow, *The Slums of Aspen* (New York: New York Univ. Press, 2013).

²⁹ D. Faber, “Imperialism, revolution, and the ecological crisis of Central America,” *Latin American Perspectives*, 19(1), 1992, 17-44; N. Chomsky & E.S. Herman. *The Washington connection and Third World Fascism* (Boston: South End Press, 1979).

³⁰ Moore, “Beyond Climate Justice.”

³¹ Ingar Solty, “No, We Can’t Afford €100 Billion for Rearmament,” *Jacobin* (25 June), <https://jacobin.com/2022/06/german-rearmament-defense-budget-ukraine-olaf-scholz>.

Century was no different. Here is Isaiah Bowman, one of the founders of American academic geography and an organic intellectual of the ruling class.³² Writing in 1924, Bowman reflected on the resource problems occasioned by America's entry into the First World War: "Formerly our international relations concerned us little, largely because we had plenty of natural resources at home; now they concern us much, for we have now to give earnest thought to ultimate resources, *wherever they may be in the world.*"³³

Nearly a half-century later, 1972's *The Limits to Growth* sounded a similar concern, albeit in less ethnocentric terms.³⁴ It's been an extraordinarily resilient framing, one that continues to animate neo-Malthusian "overshoot" – and even many ecosocialist – narratives.³⁵ Capitalism, on the bourgeois view, is limited and contested not by class struggles, but by its "stocks of... physical resources, since they are the *ultimate determinants* of the limits to growth."³⁶

The pioneering contribution of the Meadows and their colleagues was to move beyond the one-sided determination of resource limits in ways that speak directly to the Wasteocene. This argument from *Limits* has been underappreciated.³⁷ If the overall trajectory of *Limits* was decidedly neo-Malthusian, the Meadows team approached pollution in a manner that was indebted to dissident scientists like Rachel Carson and Barry Commoner.³⁸ The argument ran something like this: Growth induces a non-linear, geometric increase in pollution. This produces non-linear impacts on the *qualitative* conditions of biospheric reproduction, including the health of humans and the rest of life. Presciently, the *Limits* group identified the qualitative, temporal dimension of toxification: "[When it comes to] the earth's capacity to absorb pollution... the presence of natural delays in ecological processes increases the probability of underestimating the control measures necessary, and therefore of inadvertently reaching those upper limits."³⁹ (A matter to which we'll turn presently.)

The implication is clear. The decisive biophysical contradictions are not confined to resource supply – the question of so-called "taps." Rather, *Limits'* authors suggested, the question of so-called "sinks" may well pose uniquely intractable problems for "economic growth," further amplifying global inequality. This is precisely what's unfolding

³² N. Smith, *American Empire: Roosevelt's Geographer and the Prelude to Globalization* (Berkeley: Univ. of California Press, 2004).

³³ I. Bowman, *Supplement to the New World: Problems in Political Geography* (Chicago: World Book Company, 1924), 59, emphasis added.

³⁴ D.H. Meadows, D.L. Meadows, Joergen Randers & William W. Behrens III, *The Limits to Growth* (New York: Universe Books, 1972).

³⁵ W.R. Catton, *Overshoot* (Urbana: Univ. of Illinois Press, 1980).

³⁶ Meadows, et al., *Limits*, 45.

³⁷ But see C. Parenti, "'The Limits to Growth': A Book That Launched a Movement," *The Nation* (24-31 December, 2012).

³⁸ R. Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962); B. Commoner, *The Closing Circle* (New York: Bantam, 1971).

³⁹ Meadows, et al., *Limits*, 69.

through the climate crisis, as continued atmospheric carbonization overwhelms terrestrial and aquatic “sinks” and induces a transition to the planetary inferno. That inferno, in turn, is suppressing agricultural and labor productivity, the real basis of capital accumulation.⁴⁰

*From the Surplus Value to Surplus Pollution:
The General Law of Overpollution in the Capitalist World-Ecology*

Wasteocene's signal contribution is to explore these questions of the limits to capital from the standpoint of “wasted people and places.”⁴¹ This is not a wasting of things or substances but of the relations that make and unmake those entities. Armiero's *Wasteocene* is not about “waste” as a thing-in-itself. It illuminates an expressive movement and constitutive moment of the Capitalocene.⁴² In contrast to the Popular Anthropocene, the Capitalocene is a family of concepts and geopoetics – Necrocene, Polemocene, Proletarocene, and now *Wasteocene* – that foregrounds capitalism as a world-ecology of power, profit and life.⁴³ For Capitalocene and *Wasteocene*, capitalism is not a “social” factory of “environmental” consequences; it is a class society that produces changes in the web of life and is, in the same breath, produced in, and with, and through, and by, those webs of life.⁴⁴

Taken as an organic whole, Capitalocene and *Wasteocene* contribute to a richer conception of capitalism's *general law of overpollution*. It is a “general law” in the sense of Marx's Hegelian reckoning of capitalism's world-historical tendencies and counter-tendencies.⁴⁵ Just as the general law of capitalist accumulation renders “the accumulation of misery a necessary condition, corresponding to the accumulation of wealth,” the general law of overpollution makes increasingly toxic accumulations a “necessary condition” of the endless accumulation of capital.⁴⁶ Building on previous dialectical formulations of the “first” and “second” contradictions of capital, the general law of overpollution recognizes two dynamics as it pursues an elaborated synthesis.⁴⁷ It

⁴⁰ J.W. Moore, *Capitalism in the Web of Life* (London: Verso, 2015); idem., “Del gran abaratamiento a la gran implosión,” *Relaciones Internacionales*, 47(2021), 11-52; R. Patel & J.W. Moore, *A History of the World in Seven Cheap Things* (Berkeley, CA: Univ. of California Press, 2017).

⁴¹ Moore, “Beyond Climate Justice.”

⁴² J.W. Moore, “The Capitalocene, Part I,” *Journal of Peasant Studies* 44(3, 2017), 594-630; idem., “The Capitalocene, Part II.”

⁴³ Crucial interventions include J.P. Antonacci, “Periodizing the Capitalocene as Polemocene,” *Journal of World-Systems Research* 27(2, 2021), 439-467; J. McBrien, “Accumulating Extinction,” in J.W. Moore, *Anthropocene or Capitalocene?* (Oakland: PM Pres, 2016), 116-137; N. Brenner, *New Urban Spaces* (Oxford: Oxford Univ. Press, 2019); A. Brookes, “Three Aral Sea Films and the Soviet Ecology,” *October* 171 (2020), 27-46; The Salvage Collective, *Tragedy of the Worker* (London: Verso, 2021).

⁴⁴ Moore, *Capitalism in the Web of Life*.

⁴⁵ The best introduction is P.M. Sweezy, *The Theory of Capitalist Development* (London: Dobson Books, 1946), 11-22.

⁴⁶ K. Marx, *Capital* (New York: Vintage, 1977), 799.

⁴⁷ J. O'Connor, *Natural Causes* (New York: Guilford, 1998).

recognizes, as Armiero underscores, the spatial polarization towards ideological and biophysical “cleanliness” and “contamination” – a historical-geographical movement maps onto Hage’s reckoning of the Civilizing Project, ongoing primitive accumulation, and manifold expressions of the world color line.⁴⁸ And it extends – and makes explicit – Foster’s tantalizing conception of the “absolute general law of environmental degradation.”⁴⁹ Foster observes how capitalism tends towards the “maximum economically feasible levels... [of] entropic degradation... [for] any given historical phase of [capitalist] development.”⁵⁰ As entropy intensifies, there begins a new round of efforts to offload its worst consequences onto the Global South and working classes in the imperialist countries. As monopoly capitalism sinks more deeply into its “normal state” – *stagnation* – new rounds of entropic degradation are effected in capitalist efforts to counter-act that stagnation.⁵¹ These efforts necessarily generate increasingly intractable political and economic contradictions: “It is a foregone conclusion that the economic repercussions of the second contradiction will grow by leaps and bounds – partly under the pressure of social movements – making nature’s ultimate ‘revenge’ on the accumulation process.”⁵²

The general law of overpollution synthesizes these pathbreaking insights, highlighting three moments. It specifies the dialectical asymmetry between surplus value and surplus pollution, the latter reckoned as forms of toxification “surplus to” the biological capacities to metabolize – and neutralize – wastes of all kinds. Overpollution therefore reckons a tendency towards qualitative shifts in all manner of socio-ecological systems that, in non-linear fashion, threaten to exceed “maximum economically feasible levels.” Second, it underlines the centrality of frontiers of Cheap Nature – through which every commodity frontier implies a waste frontier – to world accumulation, and therefore identifies an unbreakable connection between skyrocketing overpollution and imperial projects of “laying waste.” Third, it identifies the non-linear evolution of overpollution in historical capitalism, such that each successive ecological regime not only produces more waste, but qualitatively new and more toxic forms of waste. At the same time, the quantitative growth of pollution – as with carbon dioxide – propels qualitative “state shifts” in the biosphere, with the climate crisis its crowning achievement.⁵³ All of which, as Foster and O’Connor imagined three decades ago, amplifies the surplus capital problem and sets

⁴⁸ Armiero, *Wasteocene*, 10; G. Hage, *Is Racism an Environmental Threat?* (Cambridge, UK: Polity, 2017).

⁴⁹ J.B. Foster, “The Absolute General Law of Environmental Degradation Under Capitalism,” *Capitalism Nature Socialism*, 3(2, 1992), 77-86.

⁵⁰ Foster, “Absolute General Law,” 85.

⁵¹ P. Baran and P.M. Sweezy, *Monopoly Capital* (New York: Monthly Review Press, 1966).

⁵² Foster, “Absolute General Law,” 85.

⁵³ D. Barnosky, et al., “Approaching a State Shift in Earth’s Biosphere,” *Nature* 486 (7401, 2012), 52-58.

in motion qualitatively new forms of the class struggle from below *and* above.

These interpretations unfold through Marx's Dialectics 101: substances are not things but relations. Carbon dioxide is just a chemical compound; only under definite relations of power, profit and life does it become a greenhouse gas. Against the Popular Anthropocene, Armiero's *Wasteocene* refuses the conceit of the dominant Environmental Imaginary to treat "environmental" problems as managerial tasks independent of the worldwide class struggle and its imperialist anti-politics. In so doing – "class matters in the Anthropocene" – he opens our imagination to a new interpretive vista: class struggles and imperial power as *environment-making* processes.⁵⁴ Toxicification is not an accidental consequence of capitalism; rather, capitalism constitutes itself through strategies of Cheap Nature. These strategies necessarily treat landscapes and lifeways as disposable. The Wasteocene is not an output but a logic of power, profit and life that – to its rotten and pathological core – *requires and depends upon the creation of* wasted people and wasted places. Toxicification, as Armiero vividly narrates, is far from narrowly economic. If some forms resemble Rob Nixon's "slow violence," its underlying conditions rest in empires, their war machines, and their property-making regimes.⁵⁵ Across the long arc of historical capitalism, *this* violence is anything but slow:

The Wasteocene logic which makes someone disposable is older than the steel factory... We should remember the Indigenous people killed without any right to be buried or deprived of their ancestors' burial grounds, the women who disappeared without leaving any traces, the miners who were never recovered from the bowels of the earth, the thousands migrants dead while crossing the Mediterranean Sea.⁵⁶

The Wasteocene's beating heart is a toxic cocktail: of militarized accumulation, Civilizing Projects, and the ceaseless production of socio-ecological sacrifice zones. This is the Wasteocene logic. Implicit in Armiero's thesis is the metamorphosis of civilizational logic into world-historical dialectic. The general law of overpollution may be stated simply enough: for every moment of commodification, there is a disproportionately greater moment of potential toxicification. *Potential* is important. For capitalism not only activates new *useful* "potentialities slumbering within nature" (Marx). It also awakens other potentialities that challenge the very basis of capitalist civilization and its specific articulation of use- and exchange-value through the law of value.⁵⁷

⁵⁴ Armiero, *Wasteocene*, 6.

⁵⁵ R. Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA: Harvard University Press, 2011).

⁵⁶ Armiero, *Wasteocene*, 23.

⁵⁷ Marx, *Capital*, 283; J.W. Moore, "The Value of Everything: Work, Capital, and Historical Natures in the Capitalist World-Ecology," *Review* 37(3-4, 2017), 245-292.

Negative-Value: The Negation of the Negation in the Capitalist World-Ecology

This latter is negative-value.⁵⁸ Negative-value can be understood as the qualitative co-production of limits to capital in the web of life. Negative-value is not negative in the sense of subtraction, but in the dialectical sense of *negation*.⁵⁹ Historically, the accumulation of negative-value assumed a latent or potential form. It is now activated through late capitalism's marriage of productivism, imperialism and the global division of labor. The contradictions are immediate, direct, and deepening in the early twenty-first century.

Negative-value is not a substance that adds to, or subtracts from, "the ecological footprint" or any other, equally wretched, neo-Malthusian concept.⁶⁰ It's an emergent process activated by capitalism's drive to appropriate the *biotariat*: the unpaid work/energy of planetary life.⁶¹ In this process, forms of life are "awakened" such that they are *unfixable* within the capitalist mode of production.⁶² While technological solutions may be possible, they are undeveloped because they are unprofitable – regenerative technological possibilities are either left to languish, or reduced to a narrow, profitable technical fragment that can be taken straight to market.⁶³

These negative-value contradictions can no longer be resolved for two reasons. First, because previous imperial fixes have enclosed the terrestrial, atmospheric, aquatic and bodily commons that were necessary to resolve successive accumulation crises, between the 1550s to the 1970s. These enclosures not only enabled the quantitative expansion of world accumulation. They did so in part by securing sufficient supplies of *specific* resources necessary to drive technological innovation – as the technological history of the steam engine, initially developed

⁵⁸ Moore, *Capitalism in the Web of Life*.

⁵⁹ "Negation in dialectics does not mean simply saying no, or declaring that something does not exist, or destroying it in any way one likes. Long ago Spinoza said: *Omnis determinatio est negatio* – every limitation or determination is at the same time a negation. And further: the kind of negation is here determined, firstly, by the general and, secondly, by the particular nature of the process," F. Engels, *Anti-Dühring: Herr Eugen Dühring's Revolution in Science* [1894], in K. Marx & F. Engels, *Collected Works*, vol. 25 (New York: International Publishers, 1987), 5-312, quotation: 131.

⁶⁰ M. Wackernagel & W. Rees. *Our Ecological Footprint* (Gabriola Island, BC: New Society Publishers, 1998).

⁶¹ S. Collis, "Notes Towards a Manifesto of the Biotariat," *Beating the Bounds* (July 2014), <https://beatingthebounds.com/2014/07/25/notes-towards-a-manifesto-of-the-biotariat/>; J.W. Moore, "El hombre, la naturaleza y el ambientalismo de los ricos," in *Pensar la ciencia de otro modo*, F.F. Herrera, D. Lew, & N. Caruci, eds. (Caracas: Mincyt, 2022), 55-82; idem, "Das Planetare Proletariat im Planetaren Inferno," *LfB: Literaturforum im Brecht-Haus* 7(2021), 4-11.

⁶² The world-ecological reading of "fix" – indicating both a temporary resolution to capitalist crisis and a spatio-temporal arrangement *fixed* in a specific historical-geographical moment – takes as its point of departure David Harvey, *The Limits to Capital* (Chicago: Univ. of Chicago Press, 1982). See esp. Moore, *Capitalism in the Web of Life*.

⁶³ Jesse Goldstein, *Planetary Improvement* (Cambridge, MA: MIT Press, 2018).

at the pit head of coal mines to drain water, suggests. These frontiers of Cheap Nature sufficient to resolve accumulation crisis no longer exist.⁶⁴

Second, the long history of enclosure, appropriation, and capitalization has effected the *qualitative transformation* of planetary life and life-ways. These lead to the awakening of “slumbering potentialities” in webs of life that are increasingly intransigent in the face of capitalist disciplining. This intransigence encompasses not only intractable biophysical problems like climate change. It’s a mistake to separate Nature as the domain of “substance limits” and Society as the zone of “relational limits.” This is the bourgeois separation of the “external and internal forces of development” – born in the sixteenth century and expressing in thought the separation of the re/producer from the means of re/production.⁶⁵

Engels’ “revenge of nature” includes the politics of labor – itself a “natural force” as Marx reminds us.⁶⁶ The limits to capitalism in the web of life are, then, political and ecological at the same time. And it’s here that we find the revolutionary possibilities of movements that seek to “reclaim the commons” – atmospheric, terrestrial, urban, agrarian, reproductive and beyond. For today, in contrast to previous moments, such reclamations can no longer be “fixed” by offloading capitalism’s contradictions onto new subordinated people and places. (That strategy persists, but it’s now exhausted and unable to re-establish the conditions for renewed accumulation.) This means something elementary but rarely appreciated: the politics of reclaiming the commons has entered into a zero-sum contest with the forces of capital. Such zero-sum situations are fraught with danger – and pregnant with revolution possibilities.⁶⁷ The one thing on which capital cannot compromise in the Great Implosion is decommodification and democratization.

In historical capitalism, negative-value works in a temporally discontinuous – but tendentially rising – form. “Natural delays” separate the initial “conquest of nature” from the activation of forms of life that are increasingly impervious to capitalism’s techno-managerial disciplines: herbicide-resistant superweeds, anti-biotic resistant staph infections, runaway pandemics, not to mention capitalogenic climate change. In short, negative-value is not arithmetic – “a subtraction” –

⁶⁴ J.W., “The End of Cheap Nature, or, How I learned to Stop Worrying about ‘the’ Environment and Love the Crisis of Capitalism,” in *Structures of the World Political Economy and the Future of Global Conflict and Cooperation*, C. Suter & C. Chase-Dunn, eds. (Berlin: LIT, 2014), 285-314.

⁶⁵ R. Levins and R. Lewontin. *The Dialectical Biologist* (Cambridge, MA: Harvard Univ. Press, 1985), 278; R.C. Lewontin, S. Rose & L.J. Kamin, *Not in Our Genes* (New York: Pantheon, 1984), chapter three.

⁶⁶ The phrase recurs through Marx’s life, here see *Grundrisse* (New York: Vintage, 1973), 612.

⁶⁷ This is the indispensable insight of a now-buried literature. See J. Paige, *Agrarian Revolution* (New York: Free Press, 1975).

but a dialectical *negation* of capitalist Prometheanism. Thus the general law of overpollution's long arc. The conquest of nature, once so easily realized, is negated. Engels' "revenge of nature" is in full flower.⁶⁸

The Wasteocene dialectic illuminates this tendential activation of the general law of overpollution across the history of capitalism. Many wastes in capitalism are not essentially toxic, and indeed in modest volumes are necessary accompaniments to production. Consider the manure produced by livestock. Under conditions of simple commodity production, a small farmer who builds a moveable cattle pen allows these creatures to fertilize pasture allows cow and farmer to do regenerative work. Contrast this with today's industrial-scale pig farming and the enormous "lagoons" of porcine waste that can and do rupture – producing catastrophic flooding, which is just what happened in eastern North Carolina after 2018's Hurricane Florence.⁶⁹

In the same breath, this quantity-quality transformation of non-toxic waste into rivers of shit – as apt a description of the Wasteocene as I can imagine! – is accompanied but another, even more toxic, *qualitative* transformation. The twentieth century's petro-chemical revolution has directly poisoned humans and other life – as Rachel Carson made clear six decades ago – so as to create new and enhanced profit-making opportunities.⁷⁰ In the present conjuncture, capital's unprecedented penetration of our bodies with plastics, herbicides and pesticides has produced what Shanna Swan calls the "count down" – to an absolute fertility crisis for the human species.⁷¹ In sum, the dialectic of the *Wasteocene* unfolds a series of qualitative more toxic, more invasive, and more expansive transformations of planetary life. These invasions are functionally and dialectically joined to capitalism's absolute general law of overpollution, which compels a disproportionality between capitalization and the production of waste. For every commodity frontier, there must be a greater, and over time, more toxic, waste frontier. For every quantum of surplus value, there must be a greater, and over time, more toxic quantum of surplus pollution. The arc of capitalist development is to pollute – quantitatively and qualitatively – in ways that exceed the web of life's capacity to absorb it without inducing one or another "state shift."

The Wasteocene's dialectic is consequently not one of the "destruction of nature" – a term Armiero wisely eschews. The

⁶⁸ F. Engels, "The Part Played by Labour in the Transition from Ape to Man," in K. Marx and F. Engels, *Collected Works*, vol. 25 (New York: International Publishers, 1987), 452-464.

⁶⁹ Charles Bethea, "Could Smithfield Foods Have Prevented the 'Rivers of Hog Waste' in North Carolina After Florence?" *New Yorker* (30 September, 2018), <https://www.newyorker.com/news/news-desk/could-smithfield-foods-have-prevented-the-rivers-of-hog-waste-in-north-carolina-after-florence>.

⁷⁰ Carson, *Silent Spring*.

⁷¹ S.H. Swann with S. Colino, *Count Down: How Our Modern World Is Threatening Sperm Counts, Altering Male and Female Reproductive Development, and Imperiling the Future of the Human Race* (New York: Simon and Schuster, 2021).

Capitalocene’s ecocidal logic of imperial accumulation – from the silver mines of Potosí to American nuclear and chemical warfare in East Asia – did not “destroy the environment.” Environments cannot be destroyed, only their habitability for specific biota.⁷² These imperial practices – of waste and laying waste, creating “wasted people and places” as conditions of endless accumulation – created the environments conducive to successive world hegemonies and a “good business environment.”⁷³ Such environment-making dynamics – what I have abbreviated as Cheap Nature – shape who and what is valuable, and who and what will be subject to violent devaluations. These transform webs of life, and they are in turn conditioned by webs of life.

Transcending the Wasteocene: Planetary Justice In The Great Implosion

How does this inform a revolutionary interpretation of capitalist crisis in the planetary inferno? Armiero rightly insists that ours is an epochal “socio-ecological crisis.” But what kind of crisis? Of capitalism or just its neoliberal phase? Of excessive greenhouse gas concentrations? Of our capitalogenic trinity? Of class society, or just its capitalist form?

How we answer such questions determines our politics. The identification of a logic and a crisis tendency is – I am confident that Armiero and I agree – a necessary but not sufficient basis for an internationalist and socialist strategy of planetary justice. One’s evaluation of the climate crisis and our political imaginary flow from an assessment of the history: above all, of class society and capitalism in the web of life. We can ignore those histories, and assume them in the fashion of the Popular Anthropocene.⁷⁴ But only a revolutionary synthesis – one that fearlessly pursues a “radically honest” assessment of capitalism’s general laws and challenges dogmas at every turn – will suffice.⁷⁵ Such historical materialist synthesis begins, as Armiero recognizes, by recognizing how the Wasteocene is a dialectic of class struggle in the web of life. This foregrounds, as we’ve seen, the question of imperialism and the differentiated unity of “laying waste” and “wasting people and places.”

Against the Anthropocene’s Limits-to-Growthism, we can with Marx pursue the *dialectical* interpretation of capitalism’s limits. This interpretive vista underlines the centrality of frontiers in counter-acting the tendency for the rate of profit to decline. This dialectical reckoning focuses on the non-linear relation of waste and Cheap Nature frontiers

⁷² R. Lewontin & R. Levins (1997). “Organism and Environment,” *Capitalism Nature Socialism*, 8(2), 95-98.

⁷³ J.W. Moore & G. Avallone, “[El mundo como capo de batalla: La larga historia de las crisis climáticas y la naturaleza barata en el sistema Westfaliano](#),” prologue to Y. Molinero Gerbeau, *El medioambiente en las Relaciones Internacionales* (Madrid: Editorial Síntesis, 2022), 9-21.

⁷⁴ Moore, “Our Capitalogenic World.”

⁷⁵ R. Williams, “Ideas of Nature,” in *Culture and Materialism* (London: Verso, 1980), 67-85.

– zones of minimally-capitalized work, food, energy and raw materials (the Four Cheaps).

The matter can be put simply, if schematically. Historically, great waves of industrialization have been dialectically joined to great waves of pollution and toxification. Recall the general law of overpollution’s disproportionality thesis: every quantum of surplus value demands an even greater quantum of surplus pollution. The geographical expansion of commodity complexes implies – and necessitates – new and expanded *waste frontiers*. New industrializations and new imperialisms are unified from Day One. This is, as we’ve learned, one partly because of the endless search for the Four Cheaps. It’s also because turning blood into capital – to borrow Marx’s class poetics – is an alchemy of poisoning human and other bodies, establishing sacrifice zones and populations into which the most toxic forms of waste may be dumped.

So long as waste frontiers could be enclosed, conquered, or otherwise subordinated, the costs of toxification could be effectively externalized. For a very long time, various forms of pollution and toxification posed episodic and regional troubles – but no systemic barrier to world accumulation. This was obviously a situation that could not endure. At some point, the waste frontiers would be enclosed and “sinks” would overflow. The damage to human and extra-human life would begin to register on global capital’s ledger.

But it’s not just that the sinks overflow. That’s much too linear, mechanical. The sinks are shattering, imploding. This is because “waste” is not a thing but a relation, and capitalism’s Wasteocene logic brings not just quantitative expansion but a *qualitative* shift in the biogeography of waste. One dimension is the dramatic toxification of production. The petro-chemical and agricultural revolutions since the 1940s, poisonous hi-tech production, the increasingly toxic character of fossil fuel extraction in coal, oil, and gas, the rise of the postwar nuclear power complex. Not to mention the military-industrial complex – in the United States above all – which now ranks among the world’s leading carbon polluters, and rightly infamous for poisoning its own soldiers as well. (Think: burn pits, depleted uranium, Agent Orange.)⁷⁶

Nowhere is waste frontier’s non-linear character more obvious than in the climate crisis. This crisis involves all three dimensions of waste under the general law of overpollution: the imperial-bourgeois enclosure of the atmospheric commons; the prodigious output of greenhouse gases; and laying waste to any who dare challenge American unipolar hegemony. (The Pentagon is the world’s largest institutional emitter of greenhouse gases.⁷⁷) The massive expansion of fossil fuel production with the rise of monopoly capitalism in the late nineteenth century reveals the qualitative shift in stark relief: the

⁷⁶ These soldiers are proletarians, many of whom hail from the “wasted” places and populations highlighted by Armiero’s searing indictment of environmental injustice.

⁷⁷ N.C. Crawford, *Pentagon fuel use, climate change & the costs of war*, Working Paper (Watson Institute, Brown Univ., 2019).

movement from pollution as waste problem to *overpollution* as a key element in capitalogenic planetary crisis. Here is another narrative struggle. This is not a linear story of the enclosure – and thence closure – of waste frontiers, followed by incrementally rising damages to life and costs to capital. It’s a story of how capitalism’s 500-year Cheap Nature strategy is imploding – an epochal reversal of the cost-minimization that has made possible world accumulation since 1492.

Conclusion: From the Global Dump to Planetary Socialism

The closure of the Global Dump, as Armiero puts it, is the relational limit of Cheap Pollution and epochal activation of negative-value in politics, in soils and crops, in the climate. This does not put an end to capitalism’s business as usual on the matter, which continues to pursue militarized accumulation even as its effectiveness to revive the conditions of world accumulation wanes. Here is the Great Involution. Absent new frontiers, capital’s contradictions turn inwards, yielding an unprecedented onslaught of toxification and violence which also – as in Geertz’s famous formula – suppresses labor productivity and induces a reproduction crisis of labor.⁷⁸ Why this should be so is straightforward: capitalism’s business as usual, its ensemble of technical innovation, militarized accumulation, and Cheap Nature flowed through the Great Frontier. Those successive frontier movements enabled imperial bourgeoisies to check the tendency towards the rising costs of production in Marx’s sense, and to contain the dangerous classes set in motion by industrialization and imperialist superexploitation. Its closure represents a quantity-quality tipping point: an *epochal* crisis of capitalism.

Capitalism is now activating new “potentialities slumbering in nature” (back again to Marx). The web of life, poisoned and toxified and managed since 1492, is in open revolt. The capitalist world-ecology, it turns out, makes not only the proletariat – but also the biotariat – the gravediggers of the bourgeoisie. Whether or not the One Percent will morph into a post-capitalist, techno-authoritarian ruling class – one suggested by Davos Project and its Great Reset – is up for grabs.⁷⁹ So too is a planetary socialism that takes to heart Marx’s dialectical insistence on the unity of the “soil and the worker.” But to think that capitalism can weather the storms of the planetary inferno – driven by Wasteocene’s logic and amplified by the end of Cheap Nature – is, truly, to endow capitalism with supernatural powers.

The alternative? As Armiero suggests, we must confront the mystifications served up by the Popular Anthropocene’s “invisibilization and normalization” of capitalism’s imperial-bourgeois logic.⁸⁰ The narrative struggle is a class struggle. But confronting is not enough. I know

⁷⁸ C. Geertz, *Agricultural Involution* (Berkeley: Univ of California Press, 1963), 58ff.

⁷⁹ Moore, “Global Capitalism in the Great Implosion.”

⁸⁰ Armiero, *Wasteocene*, 26.

Armiero would agree. Against the violence of Cheap Natures and its ruthless devaluation of life, we must articulate and advance a socialist alternative that democratizes popular control over the means of investment, re/production, and coercion. This will require, to be sure, not merely political-economic revolution but a cultural revolution too – one that revalues the reproduction of life in diversity, oneness, and harmony. That is not a once-and-for-all event but, as Mao might have said, a continual and continuous class struggle in the web of life. I take this to be Armiero’s dialectical implication: in unmasking the agents of the Wasteocene, we open the possibility for revolutionary democratization, and revaluing life, land, and labor at the end of the Capitalocene.