

Re: Going Around in Circles

Regimes of Waste

MARC ANGÉLIL AND CARY SIRESS

Waste is society's dirty secret.

Mira Engler¹

The madness of it all: round and round in circles we go, where it stops, nobody knows. That we are trapped in a vicious circle should come as no surprise. Contemporary civilization is driven by the desire to attain ever-higher standards of living, and the consequences leave much to be desired. The more intractable the challenges, the more entrenched our resistance to confront them. We dream of an endless supply of goods, while neglecting the aftermath of consumption-generated waste. Prosperity seems to ripen the principle of decay. Recalling Goethe's ballad *The Sorcerer's Apprentice*, efforts to keep means in check often spiral out of control. A self-reinforcing dynamic is fueled by the open-ended drive for material wealth.² And so the circle continues.

While some believe that technology is *the* answer, others are more skeptical, arguing that reductive technical idealism will only exacerbate the mess and accel-

erate the proverbial end. So, where are we heading? The responses range from the ecstatically positive to the emphatically negative. Optimism is played against pessimism, as is utopia against dystopia.³ But before the doomsayers are dismissed outright in favor of a more upbeat future vision, clues may be taken from the downside of this stalemate, where crisis rules in an apocalyptic setting.

Anyone familiar with *Mad Max*, the low-budget film trilogy set “just a few years from now,” might gain insight from such an adverse prophecy, one in which the world has come full circle and descended into chaos.⁴ What remains of the past are scraps of civilization, scattered across a wasteland stripped of resources and roamed by marauding gangs. One human outpost in particular is given the telling name Bartertown. Here, used goods are the only material resource available, and waste, whether animal excrement or technological debris, is the currency of trade in closed-loop material and energy flows. The bottom line is that everything is re-circulated for auction in the ‘house of good deals,’ a marketplace of second-hand commodities. In this desolate world, Bartertown boasts its role in “helping build a better tomorrow.” Yet, this pledge is remote from those championed by similar calls, for the same, in our time. There is nothing pristine in this *Mad Max* environment. With excess but a distant memory, whatever is at hand is mined for other possible purposes, yielding to a haphazard, impromptu mode of tinkering for survival. Denizens of this makeshift settlement form a rudimentary community, loosely held together by tacit rule. It is not quite clear who runs this patchwork of top-down and bottom-up governance—with Aunty Entity’s apparent authority from above curbed from below by the underworld power-duo Master Blaster.

Notwithstanding the pervading scenario of gloom, a series of key diagrams are enacted in this regime of waste. When the popular notion of abundance is removed from the equation, you get a self-sustaining, albeit crude, colony of mutually reliant players, whose coexistence is strictly dependent on the cooperative re-processing of a reduced palette of resources. While utopian visions tend to frame the world from the vantage of a new beginning, one that holds out the promise of a corrective and homogenizing ideal, they seldom account for the messy reality of things as depicted in *Mad Max* to an extreme. Whether utopia or dystopia, this reality will not conveniently go away in a flight of fancy, where what is here today is gone tomorrow. Looking back at the madness played out in the trilogy, it would seem that our future is not only “just a few years from now,” but can no longer be what it used to be.⁵



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1-3: Film stills from the *Mad Max* trilogy, featuring Mel Gibson as a 'road warrior' attempting to survive in a world devoid of law and order, directed by George Miller and released respectively in 1979, 1981, and 1985.

Re: Reduce, Reuse, Recycle

But let us backtrack for a moment. Are we not already players in modern-day Bartertowns, would-be recyclers in a deteriorating landscape that has become our own profane junkyard? Supporting evidence can be found everywhere. Take, for example, the weekly classified advertisements of large metropolitan regions, such as the Los Angeles edition of *Recycler*, a free-for-the-taking circular found in every gas station, car wash, or diner. As with so many other cut-rate gazettes, *Recycler* is poorly printed on cheap, second- or third-generation paper. *Recycler* was founded in 1973, on the heels of the first Earth Day as a local advertizing platform for used goods. *Recycler* has since grown into a network with thousands of distribution points throughout Southern California and has been updated with internet-based classified listings. Anything under the sun can be found in this smorgasbord of rejects, "cars, pets, jobs, real estate, it's all here." Imagine a garage sale extended to the scale of an urban territory with more than 20 million inhabitants, where commodities are kept in circulation by a last-gasp offer prior to being deemed useless and thrown away. The operation has been so successful that it has expanded to include castoffs from the construction industry, from copper, aluminum and plywood, to appliances, doors, windows, pools, fences, and gates. Perks include therapy for overweight pets, penis enlargement treatments, and girls of all sizes offering their services.

For this hodgepodge assortment, aside and despite all good intentions, the term *recycling* might not be quite appropriate for what is actually taking place. This economy of hand-me-down merchandise functions as a delay in the linear chain that links resource extraction, production, accumulation, and consumption to waste. As a means to providing a detour in this process *en route* to landfills, *Recycler* absorbs the overflow of goods at least provisionally, while clearing space for consumers to purchase more stuff. What's more, this proxy form of recycling further brokers the proliferation of capital, which in turn results in an escalation of junk.

Modern economics is founded on waste, produced at ever more frenzied rates. As is well known, the expenditure of resources is intrinsic to consumption. It can even be argued that waste constitutes the suppressed *other* of capitalism, a dirty secret kept hidden under the mantra 'out of sight, out of mind,' though subsidized by externalized social and environmental costs. The equation seems to hold that the more profitable the markets, the more garbage produced. Con-

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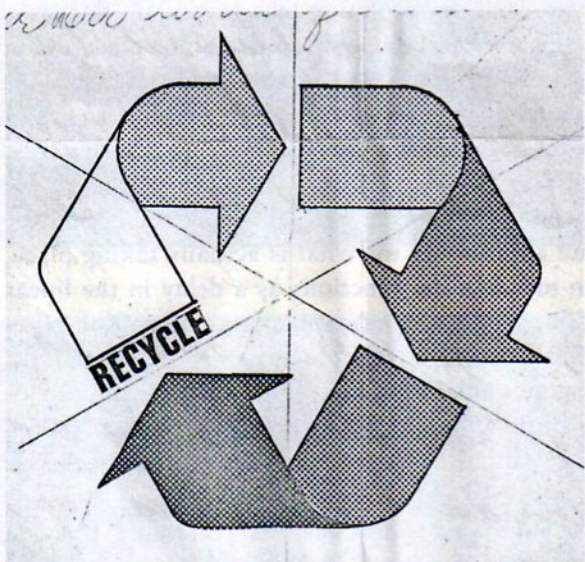
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- Title pages and back cover of *Recycler*, June 11-17, 2009. Free weekly newspaper with classified ads circulated in the Los Angeles metropolitan region.
- Sketch for the recycling symbol by Gary Anderson, selected as the winning entry in a design competition sponsored by the Container Corporation of America (CCA) in 1970.

sumption begets refuse, which in turn increases the stocks and flows of scrapped material. Based on what has been termed a linear metabolism, the input of resources within the system correlate with its output in the form of detritus. Sustained accumulations of trash, amplified by the built-in obsolescence of one-way commodities, are visibly leaving their mark on ecosystems. Unsurprisingly, there is a lot of clamor about keeping waste streams in check. Calls are made to shift from linear to circular processes in order to mitigate environmental pressure from trash run amok.⁶

Such pleas are evident in the ubiquitous symbol for recycling that, as fate would have it, is printed on so many discarded products. The logo was the winning entry in a competition sponsored in 1970 by the paperboard-packaging manufacturer Container Corporation of America, designed by Gary Anderson, a University of Southern California architecture student at the time. A rallying icon for green awareness, the design could not be more simple. Comprised of three chasing arrows, the diagram circumscribes a closed-loop system, where one segment feeds into the next interminably. Though usually presented as a flat, two-dimensional image, the figure recalls the seamless continuity of a Möbius strip unfolding in space. Referencing the impossible realities of M. C. Escher's 'Strange Loop' motifs, the diagram implies the phenomenon of continuous return, a veritable perpetual motion machine fueling its own cyclical revolutions. The message is clear: waste must be tapped for all its worth.

Clearly, efforts to promote the virtues of eco-friendly practices were at the forefront of the day, for minding the environment had become a moral imperative. Yet, this is not the full story of the recycling symbol. As options for getting rid of waste narrowed quickly due to increasingly stringent legislation, companies in the US were forced to go on the defensive. Rather than mining natural sources, as was commonplace, mining discarded material took on a new value. What can ostensibly be viewed simply as a benevolent turn by industry, was actually allied with a shrewd business tactic to adhere to policy pressures and growing environmentalist demands. Reprocessing was born of necessity rather than choice. To stretch natural resources, *recoverable* material became the newly honored *raw* material. Corporate endorsement of recycling killed two birds with one stone: while providing industry with a badge of environmental correctness, endless material supply could meet endless market demand, and all of this without reducing consumption. In time, the three little arrows—without ever being credited to their author—were printed on virtually everything.⁷

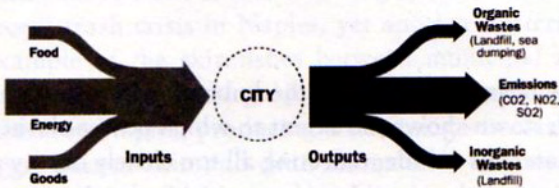
The tripartite symbol was aligned with the three R's—reuse, reduce, recycle—to become a clarion call for all, for they seemed to offer a panacea for the situation. Similarly, an array of initiatives, including William McDonough's 'cradle to cradle' and Paul Palmer's 'zero waste' approaches to material life-cycle management, have recently claimed to provide equally viable solutions.⁸ Though commendable, such efforts are limited in their effectiveness as long as prevalent economic mechanisms remain intact, particularly those that factor out the impact on the environment and displace the cost to the public domain.

Notwithstanding the pretense of cleanliness associated with Anderson's logo, recycling is hardly a clean-cut affair. As demonstrated in the near-future world of *Mad Max*, Bartertown is dirty and far from ideal. Material and energy shortages coupled with power struggles dictate the very political economy of waste. And, our cities are no different. The messy reality of material stocks and flows and their relevance for urban production must be acknowledged. Though commonly perceived as being in stasis, material things are in a state of flux. Matter is not just stored in the environment but incessantly circulates through it, all the while being transformed. Cities are processing machines for enormous amounts of physical substances, with the building sector alone absorbing up to 50 percent of all material resources globally used, while generating a similar proportion of construction and demolition waste.⁹ To make things more complicated, cities are formed by highly heterogeneous material composites made from a range of partially incompatible parts, all transforming at different rates of velocity in mutually dependent flows. Darling of green lobbies of all stripes, the perfect circle model is broken up into a profusion of interlocking loops that are enmeshed in further cycles. With current urban development primarily relying on linear input-output processes, more and more matter is being accrued in cities, constituting a vast reservoir that has yet to be fully quarried. A case in point: there is now more copper in urban environments than in nature, suggesting only one of many material reserves that need to be recovered.¹⁰ Were such re-sourcing to happen, our own Bartertown would become a city that is itself a closed-circuit, where—as Lavoisier's first law concerning the conservation of mass stipulates—"nothing is lost, nothing is created, everything is transformed."¹¹ Framing urbanity in view of a sustainable handling of material resources requires a paradigm shift premised on circular urban metabolisms, a re-orientation undoubtedly requiring changes in political and economic structures.

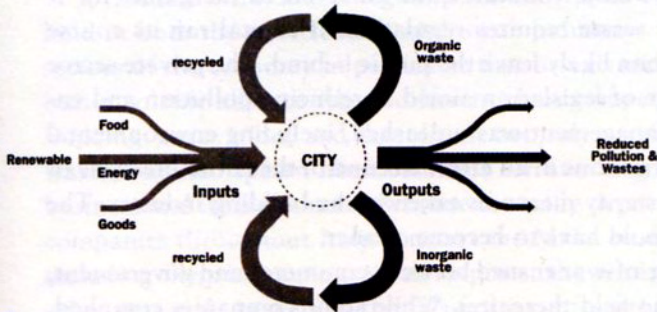
Cities are constituted by an accumulation of matter generally in step with the accumulation of capital. With the recent increase in the mobility of capital,



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6: Birds scavenging mounds of refuse at the Fresh Kills Garbage Dump prior to its closure early 2001. The image appears on the cover of Heather Rogers' book *Gone Tomorrow. The Hidden Life of Garbage*, published in 2005.



7: Diagrams comparing linear and circular metabolisms in cities, from the 1995 Reith Lecture by Richard Rogers, *Cities for a Small Planet*.

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material flows have accelerated and become more complex. Capitalism has always taken advantage of the simple fact that raw material can easily be converted into processed artifacts, which can be sold as consumable goods. The intertwined development of the economic system and the material requirements of society are the very stuff of 'historical materialism', a concept concerning the production and reproduction of material and social relations, introduced within political economy and its attendant discourses.¹² So, with the advent of the green revolution and the maxim of the three R's, a new chapter opens offering the opportunity to potentially rewrite economic practices as we know them. But, capitalism—in its current form—has proven adverse to both reduction and reuse, for they stand in contradiction to unbridled growth and forewarn of imminent scarcity. The remaining R, however, while at first met with resistance, has proven to be a blessing. As a socio-technological fix, recycling requires its own industry, therefore mandating more production and ensuring more consumption. By the same token, recycling has kept capitalism alive by satisfying its insatiable appetite and taking the guilt out of waste. Consuming means never having to say you're sorry.

Re: Regulate

Tracing another loop in the story, it is apparent that the knot of circles must be disciplined. The lesson from Bartertown shows the extent to which power-clashes pervade the scene and disparate interests collide, reflecting all too closely our own predicament. To enforce compliance with principles of sustainable development, an additional R, regulation, was introduced quite early on in the game, for it became alarmingly clear that waste requires regulation. If capital ran its course unrestrained, it would more than likely leave the public behind. The private sector had to be curtailed. A barrage of legislation aimed at reducing pollution and ensuring more diligent waste management was unleashed, including environmental policies, taxes, levies, and restrictions in an effort to control the entire life cycle of commodities, with similar austerity measures taken in the building industry. The bottom line was that cities would have to become cleaner.

As might be expected, a tug-of-war ensued between commerce and government, setting the tone on the playing field thereafter. While some companies complied, others looked for loopholes to evade restrictions, outwitting the system where possible. Still others sought refuge in offshore havens, where laws were either lax

or non-existent. Meanwhile at home, waste evolved into a lucrative enterprise in its own right. The possibility to make money from the end-cycle of consumption turned attention away from the purely environmental to the financially alluring prospects of new markets. Recognizing in the interim that garbage means business, the political and legislative response has been to reconsider draconian policies and make it easier for companies to benefit from refuse. What one encounters here is a constant give and take in the hard-edged gamble of drawing the line, being side-lined and then brought back into play, all the while negotiating where the next line will be drawn, with bartering the name of the game.

Insofar as waste is a repressed matter, it has from time immemorial lurked in the nether world of social life. And, with waste made invisible, covert regimes below the radar have enjoyed free reign ever since. While the formal sector is engrossed in administering the logistics of refuse, other players silently operate in the margins. It is here that clandestine industries flourish. Manhole covers, copper pipes, and aluminum panels, for instance, are stolen and sold on the black market for considerable profit, thus revealing the hidden worth of the city as a veritable gold mine. Off the books and under the table, the informal sector can easily sink its talons into anything associated with value, including garbage. The recent trash crisis in Naples, yet another Bartertown of our time, is a poignant example of the skirmishes between municipal authorities and local syndicates that operate beyond legal jurisdiction. Mountains of uncollected rubbish lined the streets in Naples, producing a sickening stench that was "a cross between rotten eggs, burned skin and dead animals."¹³ The results were appalling: the air was poisoned, Italy embarrassed, and, as feared, the local Mafia empowered.

Organized crime in this region, as in other parts of the world, has a strong foothold in both the construction and waste industries. Strangely enough, it is these sectors of the economy in particular that bring various strains of the underworld into a volatile alliance where different clans compete for a share of the business. Building, excavation, and demolition not only produce a tremendous amount of waste, but also spawn illicit channels for handling it. But here again, legitimate business and its illegitimate twin are mutually dependent. As is common practice, companies throughout Italy contract the Mafia to do the dirty work of disposal, including illegal dumping, waste exports, the remixing of toxic substances with other material, as well as the falsification of customs documents and merchandise certificates. Such services comprise what Roberto Saviano refers to as the business of phantom refuse.¹⁴ Outsourcing of this breed relies on an unexpected

reversal of economic principles, where money changes hands not to acquire things, but rather to get rid of things. But it doesn't end here. As common sense would have it, one fundamental rule of business is to diversify. Ergo, covert operations of Neapolitan families have turned to other dubious sources of revenue such as counterfeit fashion, money laundering, drug dealing, weapons smuggling, and prostitution. Ventures of this sort demanded a larger arena, thus turning what had begun as a local business into a global enterprise, with partners of like kind in countries as diverse as Spain, Great Britain, Bulgaria, China, Russia, and Nigeria to mention just a few. Such growth has given crime syndicates amazing lethal power to paralyze entire cities and muscle them into submission, with Naples being the most recent home turf casualty.

The trail of garbage leads next to New York, Gotham City cum Bartertown. As funny as it may seem, we know the Mafia primarily from popular movies, *The Godfather*, *Scarface*, *GoodFellas*, and so on, with television following suit in the hit drama series *The Sopranos*. Here, the main protagonist is officially involved in waste management, a vocational cover for his underworld activities as Capo of a New Jersey gangster family. The irony of the script is that waste, socially repressed as a rule, serves as the foil of choice for the protagonist's own suppressed psychological woes, which—in keeping with good Freudian practice—require therapy. His analyst is surely “accustomed to concealed things from despised or unnoticed features, from the rubbish-heap of our observations.”¹⁵

Taking clues from real life, the plot of *The Sopranos* mirrors actual events taking place in New York in the early 1990s, when mob-controlled garbage cartels were brought to justice. The story unfolds from the mid-20th century onward. Organized crime had moved into the consumer age, with waste becoming the best thing since Prohibition. Their power stemmed from a simple precept: “Control the flow of garbage, and just as surely as if you owned the supply of fresh water or electricity, you had an entire sprawling metropolis by the jugular.”¹⁶ This fit neatly with an organization already commanding the construction industry in many parts of the country. The waste monopoly in New York was anchored territorially by an illegal geographic area rights system, granting Mob-controlled trash collectors ownership of specific customers and locations. Anyone doing business in the city had to pay what amounts to a modern-day feudal tax to have trash removed. When volumes of pure refuse diminished due to environmental laws, the Mob expanded their enterprise to capitalize on the collection of recyclables. Fortunes were made, albeit in dirty money. All this ended rather abruptly when the cartel

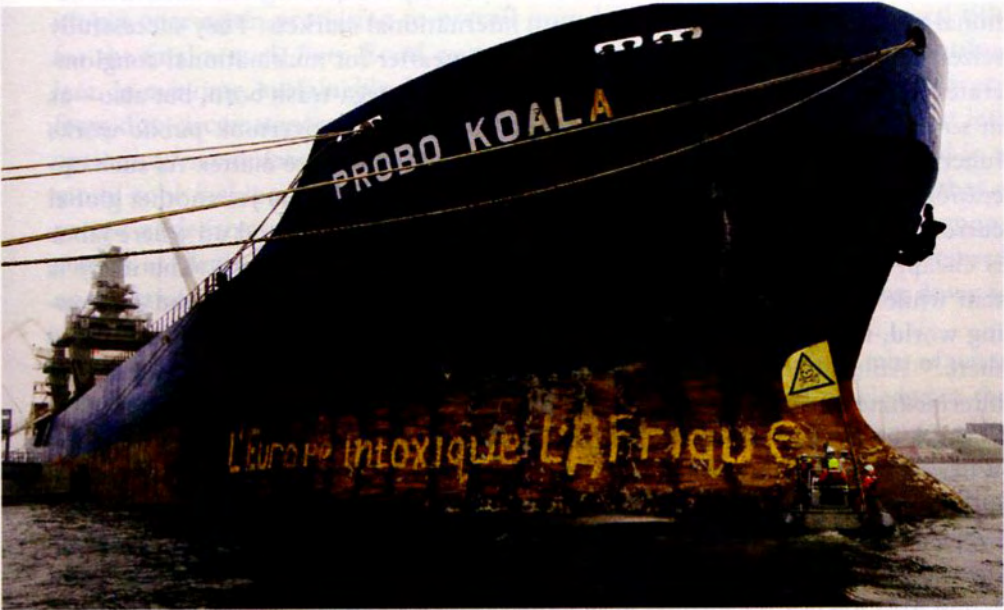
Italians raising a stink over trash



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- 8: Article entitled "Italians raising a stink over trash" reporting on the community outcry over the mounds of waste accumulating in the streets of Pianura, a town near Naples. *Los Angeles Times*, January 8, 2008.
- 9: Still from the premier TV-episode of the *Sopranos* showing Tony Soprano offering flight tickets for a forced vacation to a syndicate member, HBO, January 10, 1999.
- 10: Greenpeace activists painting "L'Europe intoxiquée L'Afrique" on the hull of the cargo vessel Probo Koala, involved with the illegal toxic waste dumping incident in the Ivory Coast region of Africa on August 19, 2008.

was taken down by government agencies seeking order and to formalize the previously informal waste management practices. As a consequence, waste streams needed to be redirected and new organizational structures devised. The business was handed over to the private sector and garbage disposal was effectively made a corporate enterprise.¹⁷

In the space opened up by the crackdown, companies moved in to clean up after organized crime, ultimately rivaling the prices of the previous cartel extortion. Two early players that spearheaded the consolidation of the garbage trade in the US were Waste Management Inc. and Browning-Ferris Industries. They began by swallowing up small local firms all over the country to form regional and then national monopolies, before spreading into international markets. They successfully seized control of waste, setting an example thereafter for multinational conglomerates to emulate. Not only was the big business of mega-trash born, but also—as in so many other sectors of the economy—corporations overtook public works functions of municipalities, making the entire affair a private matter. As such operations expanded, waste traffic crossed borders to circulate as yet another global currency and followed the path of least resistance. Waste wound up where labor is cheap, environmental legislation weak, and ethics not an issue. The irony is that while the bulk of consumer goods are increasingly produced in the developing world, the majority of consumption-generated detritus is now also deposited there.¹⁸ Affluent nations turn out to be nothing more than a middle-world, an intermediate circuit in material flows constantly crisscrossing the planet.

And, it is these flows that are rewriting the political economy of waste. Whereas the surge in new business opportunities might stimulate ailing economies in poorer parts of the world, these same ventures can take advantage of not only being out of sight, but also out of mind. As the line dividing the legal from the illegal in this industry is so thin that it is negligible, garbage offers a good foil to hide behind. To operate in the dirty business of rejectamenta, whether domestic or elsewhere, is to enter the troubled waters of less-than-legal grey zones. An extreme case is the import and export of toxic substances. Nations predominantly in the Southern hemisphere serve as the world's dumping ground. What amounts to widespread environmental discrimination stands in direct defiance of the Basel Convention, which was ratified to regulate "trans-boundary movement of hazardous waste" particularly from developed to less developed countries.¹⁹ Insofar as the not-in-my-backyard mentality prevails in more prosperous regions, illegal dumping continues. It encounters little opposition from those

who stand to gain at either end, those too disadvantaged to mount resistance, and those all too eager to wash their hands of dirty deeds.

Re: Reframe

Rumors have it that a fourth installment of *Mad Max* is currently being discussed. That future yet again “just a few years from now”, is in pre-production. With the script still open, we might consider possible scenarios. At the end of the trilogy, surviving nomads set off from their deprived world to seek a better life, with utopia once again promising to prevail over dystopia. But, as the proposed title for the final sequel, *Fury Road*, suggests, the journey to paradise will be turbulent. In our time, sustainable development holds out a similar promise of delivery from dire circumstances, for its premises and objectives are perhaps the best last options at our disposal. However, calls for sustainability have been cloaked in a moral robe fashioned on austerity, scarcity, and restraint. We are warned that a period of deprivation is imminent and encouraged to accept sacrifice and renunciation as ideals, over and above indulgence and excess. A value system centered on constraint is put forth as the road map for the way forward. Slowing down is the hymn of the day.

It is exactly such a mindset that needs reframing, without losing sight of what is at stake in this vision. While calls for a sustainable future acknowledge to the central role of capitalism in getting us there, stopping has never been a part of its enterprise. As a matter fact, no one can turn off the growth machine of capital. Thus, a possible take could be to capitalize on this internal momentum, taking advantage of the collective drive for prosperity, but to the n-th degree. This means discarding the moral robe of guilt in favor of redirected forms of expenditure. As Georges Bataille argues, the resolution of the problem cannot be formulated relative to scarcity and the shortage of resources *per se*, but rather in terms of how to deal with the abundance of energy and matter that we are wasting, if only by not using them.²⁰ He points out acutely that every living organism receives more energy than is necessary for sustaining life. Supplied primarily by the sun, this excess energy, which he equates with wealth, can either be absorbed for growth or expended. Basically, we are in the midst of a vast surplus of renewable energy sources that for the most part remain untapped. This argument holds for matter as an equally renewable resource, and specifically for waste. Bataille, as a matter

of fact, was somehow “in favor of waste,” which he reframed by jettisoning its pejorative stigma and recasting it instead as a ‘gift’.²¹ Lest this seem anti-ecologically minded, it is actually a call for understanding refuse in all its heterogeneity as wealth to be mined, as a material endowment to be recycled, reprocessed, and re-circulated. Framed as an economic principle, waste is expenditure with return. It must be granted new functions rather than being simply relegated to formless and useless matter. Bataille’s deconstruction of a restrictive economy—preoccupied with deficiency and the fulfillment of momentary needs—opens up to a general economy predicated on how the wealth of resources available can be squandered. Re, re, re is the refrain for the future, a ritornello, so to speak, premised on recurring movements played in the different keys of energy and matter in continuous variation.²²

Such a refrain unfortunately failed to inspire one of Italo Calvino’s invisible cities. As we are told, “the city of Leonia refashions itself everyday.” Here, the new is exalted in a hyper-linear metabolism where everything is used only once and then discarded. Heaps of refuse surround the city on all sides like a chain of man-made mountains. Commodities and waste are ratcheted closely together in an ever-accelerating one-way sequence of use and disposal. “This is the result: the more Leonia expels goods, the more it accumulates them; the scales of its pasts are soldered into a cuirass that cannot be removed.”²³ This doomsday aftermath is well known, for as it is in the tale, so it is in our story: cities become buried by the rubbish they try in vain to reject. Although classified under the heading of “Continuous Cities,” Calvino’s fable falls short of portraying a closed-loop system running *ad infinitum*. He does, however, hint that the true passion of Leonians is not really the accumulation of new things, but is actually driven by the pleasure of getting rid of them. “Street cleaners are welcomed like angels, and their task of removing the residue of yesterday’s existence is surrounded by a respectful silence, like a ritual that inspires devotion.”²⁴ Waste and its meticulous handling are valued as gifts, offered by society to itself. Were we to turn the parable’s missed opportunity to our advantage, a modified economy would be set into motion. Perhaps then we would come full circle in being sustained by the constant transformation of matter and energy at hand, without beginning and without end.

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- 1.) Mira Engler, *Designing America's Waste Landscapes* (Baltimore: The Johns Hopkins University Press 2004), p. 14.
- 2.) John E. Fernández, "Beyond Zero," published in *Volume: After Zero*, Vol. 18 (New York: Archis, AMO, and C-LAB 2009), p. 8.
- 3.) See Kevin Lynch's juxtaposition between 'Waste Cacotopia' and 'Wasteless Cacotopia' as two extreme models of worst case scenarios, in Kevin Lynch, *Wasting Away. An Exploration of Waste: What it is, How it Happens, Why we Fear it, How to do it Well* (San Francisco: Sierra Club Books 1990), pp. 3-10.
- 4.) *Mad Max*, directed by George Miller and featuring the then little-known actor Mel Gibson, was released in 1979. The film's sequels, *The Road Warrior* and *Mad Max Beyond Thunderdome*, appeared in 1981 and 1985 respectively. The first installment of the trilogy opens with the narrator framing the plot in a not too distant future.
- 5.) Author's modification playing on Paul Valéry's aphorism "The future is not what it used to be." The original in French is "L'avenir n'est plus ce qu'il était." *Oeuvres* (Paris: Gallimard 1957).
- 6.) See Peter Baccini and Paul Brunner, *Metabolism of the Anthroposphere* (Berlin: Springer Verlag 1991). Herbert Girardet, *The Gaia Atlas of Cities. New directions for sustainable urban living* (London: Gaia Books Limited 1992 and 1996). Richard Rogers, *Cities for a Small Planet*, 1995 Reith Lectures, edited by Philip Gumuchdjian (London: Faber and Faber 1997).
- 7.) See Heather Rogers, *Gone Tomorrow. The Hidden Life of Garbage* (New York: The New Press 2005), pp. 168-173.
- 8.) William McDonough and Michael Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York: Durabook 2002) and Paul Palmer, *Getting To Zero Waste* (Sebastopol, CA: Purple Sky Press 2004).
- 9.) John Storey, "An International Overview of Construction Materials Stewardship," in *Construction Materials Stewardship* (Wellington, New Zealand: Center for Building Performance Research, Victoria University of Wellington 2008), p. 8.
- 10.) Peter Baccini, "Cultural Evolution and the Concept of Sustainable Development: From Global to Local Scale and Back," keynote address delivered at the International Geographical Union (IGU) in Lucerne, Switzerland 2007.
- 11.) See Antoine Lavoisier, *Traité élémentaire de chimie* (Paris: Cuchet 1793), Vol. 1
- 12.) Karl Marx used the expression "materialist conception of history" in the preface to *A Contribution to the Critique of Political Economy*, first published in 1859.
- 13.) Tracy Wilkinson, "Italians raise a stink over trash," *Los Angeles Times*, January 8, 2008, p. A5.
- 14.) Roberto Saviano, *Gomorra. A Personal Journey into the Violent International Empire of Naples' Organized Crime System* (New York: Picador 2007), p. 286.
- 15.) Sigmund Freud, *The Moses of Michelangelo* (1914), in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, edited and translated from the German by James Strachey, et. al. (London: The Hogarth Press 1953-1974), Vol. 13, p. 222.

- 16.) Rick Cowan and Douglas Century, *Takedown. The Fall of the Last Mafia Empire* (New York: Berkley Books 2002), p. 14.
- 17.) Op. cit., Heather Rogers, pp. 183-186.
- 18.) Ibid., Heather Rogers, pp. 184-188.
- 19.) The "Basel Convention on the Control of Transboundary Movements and their Disposal" is an international treaty signed by 172 parties on March 22, 1989 in Basel, Switzerland and effective as of May 5, 1992.
- 20.) See Georges Bataille *La part maudite* (1967), translated into English by Robert Hurley as *The Accursed Share. An Essay on General Economy* (New York: Urzone, Inc. 1988), "The Meaning of General Economy" and "Laws of General Economy," pp. 19-41.
- 21.) See Allan Stoekl, *Bataille's Peak* (Minneapolis: University of Minnesota Press 2007), Chapter 5, "Orgiastic Recycling," pp. 115-149.
- 22.) Gilles Deleuze and Félix Guattari, *Mille Plateaux* (1980), translated into English by Brian Massumi as *A Thousand Plateaus. Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press 1987), Chapter 11, "1837: Of the Refrain," pp. 310-350.
- 23.) Italo Calvino, *Le città invisibili* (1972), translated into English by William Weaver as *Invisible Cities* (San Diego: Harcourt Brace Jovanovich, Publishers 1974), p. 115.
- 24.) Ibid., p. 114.

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