

# Integral waste

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*Theory, Culture & Society*, 32(4), pp. 133-145. ISSN 0263-2764.

## ABSTRACT:

It is not only the physical digital media that pile waste upon waste in an era of built-in obsolescence driven by over-production attempting to balance the falling rate of profit. Energy used in the manufacture, employment and recycling of devices belongs to a system where waste is not merely accidental but integral to the operation of cognitive capitalism. Oil and gas, uranium and hydroelectricity all prey disproportionately on indigenous peoples, who are turned into economic externalities along with their lands. A parallel is drawn between the waste of power in generation and transmission and the exploitation of human energy as excess under a cyborg capital that increasingly treats all humanity as external.

## KEYWORDS

Environment, energy, indigenous, cyborg, externality

The Fortune Global 500 top-ten listing for 2013 includes six petroleum, two automobile and one energy company, plus Walmart. This fact alone might explain why in a polity obsessed with wealth as the sole measure of value, no political player is willing to speak up for environmental regime change.

Concluding his talk to Google's Green Summit on 6th of June 2013 (How Green is the Internet?. <https://www.youtube.com/watch?v=O8-LDLyKaBM&feature=youtu.be>), Jon Koomey, author of several of the most persuasive reports on internet power usage (for example Koomey 2007), comes up with a figure of roughly 10% of generated electricity being employed for data-transport. He notes several comforting features: much of this use replaces and radically diminishes the use of power in other sectors (transport, retail); new devices like flash memory and tablets use far less power than earlier machines; and as a result the energy consumed in manufacture becomes a far greater proportion of the total energy cost compared to energy consumed in use, while the absolute amount per unit is falling rapidly.

On the downside, he notes that the total number of these micro-devices is increasing, not least through the internet of things; that migration from landline technologies (fibre, DSL and cable) to 2.5G and 3G mobile increases the transport energy costs severely; and that though cloud servers are invariably more efficient than in-house servers, just how much so is moot because no-one, not even the operators, know how many servers there are on any given farm, and how much power they are

using.

Koomey is unusual in mentioning two factors that are usually left out of account, the cost of transmitting electricity itself from generator to end-user, and the Enron-engineered California blackouts of 2000, which he raises only to dismiss the thesis that they were a result of increasing internet traffic. In his history of blackouts in the USA, David E Nye (2010), our premier historian of electric power, is adamant that both the Californian event and the **North East blackouts of 2003** were encouraged (though not caused in any direct sense) by under-investment in infrastructure and maintenance following the separation and privatisation of generation and transmission businesses, enhanced in the latter case by the development of real-time spot-markets in electrical power. Thus ironically computer-controlled trading was a significant contributor to the collapse of power to computing, including those responsible for viring power flows in response to real-time trades.

Jane Bennett (2010) is undoubtedly correct in arguing that the complexity of networks lends itself to chaotic amplifications of ripple effects; but the complexity is increased manifold by the introduction of algo trading, and its effects magnified by the disincentive to care for lines and plant. Even more significant is the fundamental design feature of contemporary power systems: the placement of massive generating plants at significant distances from users, a feature which enhances their centralisation in large corporations and reduces the possibility for small traders to enter the market for local generation and delivery. Because the wastage associated with distance transmission is integral to the engineering model, it never appears as a cost, even when server farm providers apply themselves to building farms close to generation sites to minimise their energy costs.

Economists recognise that certain features of the economy can be excluded from their calculations because they come at no direct cost. These features are referred to as 'externalities'. Such for example are the **environmental impacts of electrical installations** – of power lines and pylons, or indeed of wind turbines, which are of social and political concern but have no determining economic features. To some extent these examples might be read as purely aesthetic (granted concerns about impacts of turbines on migrating birds), though it is important to record that aesthetics are externalities as far as the economists, and as far as economic transactions and accounts, are concerned.

Koomey is very explicit about his methods, and about what he includes and excludes from his account. Notably absent are the *energy* costs of disposal of old machines: transport, recycling,

redemption of valuable materials, landfill. True externalities here are the human costs of handling toxic materials. Recycling involves carefully separating valueless plastics from valuable metals, but the revenues are too small to support industrialisation, so the work is undertaken in impoverished villages, notoriously on the coasts of Ghana, Nigeria, India and China. The health and welfare of the workers is external to economics; and because the energy source is human labour, it does not appear in the well-meant reformist accounting proposed by Koomey either.

Equally, while Koomey includes the energy costs of manufacture, he doesn't include the energy required to extract raw materials for manufacture. Again, the condition of miners and others involved in the extraction industry, and the environmental and health costs to local regions equally fall into the externality category. The rationale for this particular feature depends on the geological characteristics of extraction, of both energy and materials, which, since the exhaustion of resources near the metropolitan centres, tend to be found in areas remote from the population centres where end-products are consumed. Overwhelmingly, these geological resources are sourced in lands previously deemed worthless and therefore earmarked as reservations for displaced indigenous peoples during the period of European imperial expansion from the 18th to the 20th centuries. Today even those badlands are open for business.

After the 87 day spill from the **Deepwater Horizon** rig in the Gulf of Mexico that began on the 20th of April 2010, killing 11 people and damaging coastal industry and environments from Louisiana to Texas, BP established a fund of \$20 billion for individual claimants, were billed for \$4.5 billion in fines and paid for a \$594 million early settlement fund. Contrast Ogoniland where according to the Center for Constitutional Rights (2009), 'An estimated 1.5 million tons of oil has spilled in the Niger Delta ecosystem over the past 50 years. This amount is equivalent to about one "Exxon Valdez" spill in the Niger Delta each year'. Royal Dutch Shell offered \$15.5 million to the families of Ken Saro-Wiwa and the Ogoni Nine in a 'humanitarian' gesture following the oil protesters' deaths in 1995. No other major payments have been recorded.

**Petroecuador**, the national oil company, took over the assets of Texaco in the headwaters of the Amazon after the Frente de Defensa de la Amazonia ([www.texacotoxico.org](http://www.texacotoxico.org)), a coalition of indigenous Amazonians, took out a lawsuit against the American company in 1993. Nineteen years later, after the election of a socialist and indigenist government, Ecuadorian courts awarded damages of \$18 billion against Chevron, who had taken over Texaco. Chevron however declared that they were not liable, that Texaco settled all clean-up costs to the satisfaction of a previous US-

friendly government, that Ecuador had no legal rights in the matter, and that since they had no assets in Ecuador, they were in a position to refuse to pay. Chevron lawyers immediately lodged an appeal. Not only is legal delay a typical corporate strategy; even the attempt to place a cash value on environmental vandalism, the better to walk away from the consequences, is insulting. It places the environment of the Quechua, Cofán, Scoya, Shuar, Siona and Huaorani indigenous peoples whose home this is inside a regime of exchange values which is entirely incommensurate with their beliefs and values.

Few things illustrate the suicidal tendency of the corporate cyborg more than the **Arctic oil rush**. The first to feel its effects are once again indigenous people. Russian Sami in the Murmansk area have been campaigning against mineral extraction since the 1990s: now like their cousins in northern Scandinavia, they face losing their reindeer pasture and migration routes to oil installations and pipelines. Partly because of the extreme conditions, and partly because the sites are so far from centres of control and oversight, Russian pipelines are especially prone to leaks. No official figures are available, but excluding floating rigs, according to Greenpeace (2013), 'The Russian oil industry spills more than 30 million barrels on land each year – seven times the amount that escaped during the Deepwater Horizon disaster', of which 4 million barrels make their way down thawing rivers into the Arctic Ocean. The Arctic is home to **four million indigenous people**, dependent on herding, hunting and fishing, all of them not only threatened but actively in decline due to oil and gas exploration. Life expectancy is dramatically shorter than among comparable populations in those areas like the Yamal Peninsula, described by Vladimir Putin as 'the world's storehouse' of gas and oil (<http://www.reuters.com/article/2009/10/06/us-russia-yamal-nenets-idUSTRE5953ZB20091006>). The world's, in name only, but certainly not the storehouse of the Nenets whose traditions place them here for over 5,000 years

For even longer, 50,000 years, **indigenous Australians** have lived in the Northern Territories. The Kakadu National Park is a UNESCO World Heritage site: escarpments with natural caves and scrub and vast billabong systems. When the first Australians walked here across the land bridge from New Guinea and saw these small highland savannahs overlooking an endlessly stocked larder of plants, fruits, fish and animals, they must have felt they had at last reached home after their long wandering out of Africa. Their rock art has been maintained alongside traditional means for preserving and harvesting the land ever since. But the discovery of uranium in the 1950s led to the establishment of uranium mines at sites at Jabiluka and the open-cast **Ranger Mine**, both nominally outside the Park though surrounded by it. The rainy season in the Top End of Australia is biblical:

tailings from subterranean mining at Jabiluka and the vast open pits of the Ranger flood every year.

The result is caught in bullet points from an **Australian Senate report**:

- Potential damage to the ecology of the Park from contaminated water from the mine site;
- The disposal of tailings and the leaching of uranium from the tailings into the water system of the Park;
- Threats to the health of workers and the local population from radiation;
- Threats to the cultural heritage of the Aboriginal population, including possible damage to significant art, archaeological and sacred sites; and
- The potential for damaging social impacts on Aboriginal people and culture.

(Senate Environment, Communications, Information Technology and the Arts References Committee 1999)

The park is studded with warning signs at the sites of abandoned mines from as early as the 1950s. Conditions there must have been hard: intense heat and humidity, isolation, backbreaking work with primitive machinery, and precious little health and safety. The leavings of these sites still carry warnings not to camp, wash or eat nearby. The situation was so bad that the Australian Government barely headed off a move by UNESCO (1998) to declare the Park 'in danger', resulting from a working group report which found 'potential danger' in faulty hydrological mapping, failing practices for securing tailings and impacts on catchment areas.

Four years after its 1999 report, the Senate Committee returned to the issue. In the deliberate language of bureaucracy they noted that

Authorities and mine operators acknowledge that there has been contamination from mining activity but argue that even though there have been hundreds of incidents, the number is not significant and that, in any case, environmental damage has not been proved.

It is the case however that a pattern of underperformance and non-compliance can be shown. The Committee also identified many gaps in knowledge and found an absence of reliable data on which to measure the extent of contamination or its impact on the environment. (Senate Environment, Communications, Information Technology and the Arts References Committee 2003: ix);

further observing that

The Mirrar People, although Traditional Owners, have no direct role in the regulatory system and power of veto was removed in 1976 over both the Ranger and Jabiluka mining rights for the Mirrar and the NLC. This was despite Justice Woodward's statement in 1974 that 'to deny to Aborigines the right to prevent mining on their land is to deny the reality of their land rights'. (Senate Environment, Communications, Information Technology and the Arts References Committee 2003: x)

The exclusion of those most affected by mining from decision making is a typical form of environmental governance. It makes clear that indigenous populations can be treated with the same disdain as the natural environment, while simultaneously revealing that the 'local' is indeed comprised of both people and place. The effects on health and ways of life through the mortality or mutation of local food sources are intensely local, but the traditional owners recognise their global connectedness. Writing to Ban Ki-moon in the wake of the Fukushima disaster, senior traditional owner Yvonne Margarula was saddened that uranium from her lands now contaminated Japan, requesting that Jabiluka, abandoned as an active mine after years of protest, be returned to the Park (Murdoch 2011).

Writing in 2013, Grumbine and Pandit (2013) count 292 **dams under construction** in the Indian Himalayas, and a further 129 dams in neighbouring Himalayan countries destined to supply India. Previous dam building in India has displaced anywhere between 16.4 to 40 million (Negi and Ganguly 2011) almost all of them in the so-called tribal areas, with massive loss of forest and animals as well as the diversity of human cultures. Press coverage of protests aimed at preserving wilderness in the mid-Western USA, or of historical artefacts at Aswan on the Nile, has scarcely been matched in the case of the massive displacement of the poor in projects like the Narmada River dams in India, despite the best efforts of novelist Arundhati Roy (1999, 2010). The Chinese government's official statistics for internally displaced populations associated with the development of the Three Gorges alone stands at 1.3 to 1.9 million people (Chao 2001), while even Xinhua (2007), the official news agency, reports that pollution, silting, erosion, and poorly-understood meteorological effects of replacing agricultural land with vast reservoirs are taking a serious toll on the Yangtze. The Chinese sturgeon is one of several fish species threatened with extinction, along with the livelihoods of their traditional fisherfolk, while water-borne disease is an increasing hazard on the banks of the now stagnant reservoirs.

Petroleum industries have been displacing and poisoning indigenous people since the destruction of

Bedouin wells by oil seepage in the 1930s. Nuclear and hydro power equally target the indigenous. The integral waste of capital begins, as it did in colonial expansion, in the decimation of indigenous populations. Are metropolitan populations immune to this 'darker side of modernity', to use Walter Mignolo's phrase (2011)?

The posthuman is not just a classy theory addressing affective properties of more-than-human assemblages. Actually existing post-humanity takes the form of corporations like Enron and **Chevron**/Texaco. We thought cyborgs would be like Robocop, humans with chips inserted. The myth obscures the reality: that there are already cyborgs composed of massively interconnected computer arrays with human bio-chips. They survive and reproduce parasitically, by extracting profit from energy grids connecting the unmanaged turbulence of deregulated and automated markets with aggressively active users (scarcely be caught in the term 'consumers'), whose instinctive needs are no longer socialised as desires but, on the hetero-normative model of the protestant regulation of sexuality, diminished to demand. Modelled on this frustrated masculinist conformation of instinct to economics, the assertion of the right to choose becomes the angry consumerism we recognise in the gun and car lobbies, now extended to the right to network communication, regardless of its environmental and human consequences. *Théorie Communiste* (2011) is wrong to argue that the working class is no longer working and therefore has no purpose (or identity): the old working class is required to destroy the overproduction that generates crises in pursuit of growth. This disciplined labour of consumption is marked subjectively by its asocial and unhappy demand, an alienation parallel to that of factory workers in an earlier stage of capital. No longer tied to the body as instinct, or to socialisation of desire, demand is entirely economic, structured as choice for economic and biopolitical management. We are post-human to the extent that as subjects of cyborg capital we are losing our grounds in body and sociality. This is the contemporary formation of unhappiness.

Corporate actor-networks, both fiscal cyborg and alienated posthuman, are socio-political agents whose other-than-human standing is confirmed by their motivation by profit, regardless of all other externalities: aesthetic, environmental and today very clearly human. Their environment is not the physical world but the financial. Their laws are not convivial but brutally competitive even to the point of self-defeat.

Example: both fuel and asphalt prices spiked in April 2012, the period of the greatest intensity in the Syrian uprisings, and civil strife in Bahrein, Tunisia and Egypt. The two prices are locked because

once oil reaches a certain price, it becomes economically feasible to mine for fuel the Athabasca tar sands and other sources of low-grade fossil material, previously used for road building. At such prices, laying oil-derived asphalt, an infrastructural cost normally borne by states, becomes increasingly expensive: cars must compete with roads for increasingly costly primary materials even though neither makes sense without the other.

If repairing the degradation of the environment, air pollution, black carbon particles or any other non-fiscal feature can be rendered profitable, then polluting is logical. But if it cannot, then from the cyborg perspective, dumping excess production into the natural environment and the human biomass is still a cost-free method for resolving crises of over-production. A lose-lose scenario, up to and including rendering their own life-cycle as profitable enterprises impossible by exploiting the sources of wealth, human creativity and natural processes, to the point of collapse.

According to one tanker industry body, 5.7 million barrels of crude oil have been lost in maritime spillages since 1971 (ITOPF 2012). They note that the vast majority of spills are less than 7 barrels, and that statistics on these are hard to come by and not included. If we add to these therefore almost certainly conservative figures spills from oil rigs like Deepwater Horizon, and land-based spills and leaks from pipelines, drilling rigs, refineries and events like the Lac-Mégantic tanker train derailment of 2013, the losses are almost certainly at least treble. These figures do not include the costs of the energy required both to drill and to clean up and store waste product.

A NOAA survey for the World Bank estimates 150 to 170 billion cubic meters of flared gas a year, representing 27% of US consumption or \$40 billion, adding about 400 million tons of carbon dioxide into the atmosphere per annum (NOAA 2007). The ordinary volatility of fossil fuels exposed to the air, transport costs, the drips, leaks and accidents associated with them, and the endless small wastage from inefficient generators and end-use in factories, public space and homes continue the sorry tale. It includes the energy frittered away in lengthy transmission cables, and in the transport mechanisms used to carry the organised electricity of digital messages and their negentropic efforts at storage and security. The amount of light thrown uselessly upwards by street lighting makes the night sky invisible: power pylons generate waste radiation, as do mobile phones and computers. Energy, the world's biggest and most strategic industry, intimately involved with water, agriculture, industry, finance and creativity, is founded on throwing away vast quantities of its major product, heading off crises of over-production while creating artificial scarcity. Every time energy is moved or converted into different forms, the first law of thermodynamics tells us that no energy is lost, but the

second tells us that it degenerates from energy that can do work into heat or noise, by which the industry understands energy at temperatures too low or forms too random to be useful. The unwillingness to capture this low-level energy – for example to use waste gas to power the drilling operation, or to provide local energy needs – is typical of the profligacy integral to the energy cycle as it operates under capital. We ought to be surprised that the same profligacy extends to the waste of environments and people living closest to the major energy production sites and transportation routes. **Sadly we do not even notice** that, in colluding with the demolition of indigenous cultures and peoples, we deprive ourselves of our most powerful visions, exploitative though they be, of utopian exit from the uninhabitable present.

Those who are not privileged to sit at the centre of intellectual and finance capital produce a diminishing amount of the value in each commodity. Those who can, or are forced to, work, and are treated like the victims of the Bangladeshi factory collapse of April 2013: supernumerary, unregarded, a repressed that returns only momentarily as news item. Those who cannot are abandoned to civil war, famine and disease: conditions that, in the case of the Congolese war, have persisted for over a decade as the unconscious of metropolitan consumption (United Nations 2002). Meanwhile metropolitan populations, superfluous to both intellectual work and offshore industry, with diminishing health, education and social resources, prey to drugs and guns, are pushed further into ghettos that increasingly resemble the reservations set aside for indigenous peoples in the genocidal heyday of settler expansion. With the abdication of vision common to parliamentary parties of the industrialised and in many instances the industrialising world, the only organic intellectuals left are the gangs, hounded by police in an ethnoclass war to secure human status (Wynter 2003) that extends increasingly into Europe from its origins in 1930s USA. Between civil war and gang war, the trajectory of the mode of destruction instigated by consumerism would appear to lead to the auto-destruction of the consumer class.

Waste is not an unfortunate by-product of consumerism. Without waste, including the spectacular waste of flared gas and street lighting, there can be no consumer capital: in the consumer society, we are all Batailleans. Waste takes the form not only of garbage, or of waste electrical and electronic equipment (WEEE) and waste energy integral to energy economics, but of populations excluded from the centres of capital. Productive labour of the old proletarian kind still persists, but downgraded and exported: it is in countries where productive labour remains significant that we still find a recognisably working-class mode of politics, as in Tunisia and Egypt in January and February 2011, even though mass protests and direct action were promptly painted in the colours of post-

industrial social media by Western news coverage. The protest against corruption was in part a protest against the systemic waste of common wealth and popular energies by the ruling kleptocracy. That nothing similar has happened in the UK or Russia has everything to do with the move from material to symbolic production, and politics conducted through the same exchange of symbols that provides such economic growth as persists. Neo-colonial production likewise is founded on the systemic waste to which it contributes in the cycles of fashion and consumption. The undoubted catastrophe of WEEE, and the consistently colonial structure of the recycling industry (Gabrys 2010, Grossman 2007) can still be seen as curable aberrations: analysis of energy helps reframe that analysis as beyond reformist cures: we are on the trail of an integral waste.

This is not only the waste produced by the built-in obsolescence required to generate new debt for new sales of new equipment, but the endemic structural waste produced by electricity generation and transmission as typical capitalist operations. Even prior to the privatisation of national energy grids, energy industries were built in order to waste power. The process goes as far back as the enclosures, when peasants were forbidden to collect firewood from the old common land. A division of labour between suppliers and consumers of energy structured the development of coal mining, and later of huge generating projects, too big to allow competitors to enter the market. The centralisation and scale implied distance from the end-users, with the rare exception of companies like Ford who built their own generating plants next to their factories. With the move to electrical power, the distances increased, especially from geothermal, hydroelectric and nuclear sources. But even coal and gas plants were built far from population centres, joined by long transmission lines. There is a formula in electrical engineering to the effect that for every kilometre of transmission, there is a corresponding loss of energy, converted to heat, waste magnetic fields and noise. This wastage has become integral to the management of the electrical industries.

Crisis can be shared socially by distributing debt (future growth that will no longer occur) to the precariat. As a bonus, the free labour of creativity migrates the general intellect from the interior of capital, turning it into an economic externality and remaking it, alongside the natural environment and indigenous people, under the trite artifice of 'The Tragedy of the Commons' (Hardin 1968), a tragedy historically without exception brought about by privatising what had been social. Accounting as externality has historically been the prelude to over-exploitation and destruction. Paradoxically, economics accounts for externalities as at once zero and infinity: of no cost, but infinitely available. Everyone else has learned that environments are finite, and that indigenous peoples are supernumerary, as the genocide continues by proxy wars, mass displacement, imported

alcohol and drug addiction, introduced disease and toxic wastage. Following the dialectical path of colonisation and externalisation, the more it becomes environment, the more open the general intellect is to the same abuse as the natural world and indigenous peoples. The theory of finite social creativity combines with the proletarianisation of debt and increasingly disciplined consumerism to suggest that the final task of the working class, as the mode of production becomes mode of destruction, is to annihilate itself with pharmaceuticals and junk food, environmental destruction and an increasingly trivial or instrumental culture. In this too colonialism's continuing assault on indigenous peoples provides a model for capital's future.

As Gorz (2010) argues, either way capital comes to an end, barbarously or in a more civilised mode. The corporate cyborg is not human. It has no shame. It does not care about humanity or the planet. Its logic is suicidal. It rules through the cyborg government we know as The Market, and its puppets occupy the presidencies of all the major states. All those Hollywood movies about zombies and robots are coming home to roost. We must choose between neo-liberalism, reformism, or radical change: we die, or we submit to the eco-fascism of enforced rationing, or we build alternatives. It is time for a polity without externalities, a polity inclusive of indigenous peoples and their lands. We should at the very least extend citizenship to include those currently excluded from human rights by their lack of it: indigenous peoples and migrants. Indigeneity and environmentalism alike teach us that people and land are inseparable. We should therefore extend our polity to include non-human agents. After all, we already include the inhuman technical ensemble of the market as a political actor. What is so frightening about including forests, mountains and oceans in an unimaginably new democracy?

*An earlier version of this paper was given as part of the "Media of the Earth" panel at Transmediale, Berlin, February 1, 2014*

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