MAT Medicine Anthropology Theory

SPECIAL PIECES

The problem of self-devouring growth

A forward-looking afterword

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Abstract

How should future health be measured, in light of the insights collected in this special issue? This afterword calls into question the imperative of economic growth, showing how insatiable growth, predicated on consumption, produces profound collateral health effects, a process termed here 'self-devouring growth'. I argue for a new mode of value in public health predicated on refusing any calculus that separates desired effects from collateral effects.

Keywords

economic growth, toxicity, environment, interspecies, industrial food production

Our predicament is real.[1] As I write this, in September 2018, the news is not good. A heat wave is blanketing much of the northern hemisphere, and this year stands to be one of the hottest on record. Temperatures have shattered previous heat records across the world, with

1 This essay draws on ideas developed in my new book, *Self-Devouring Growth: A Planetary Parable as Told from Southern Africa* (Duke University Press, 2019).

Medicine Anthropology Theory 6(3): 186–195; https://doi.org/10.17157/mat.6.3.736.

attendant loss of life and livelihood. Hundreds have died in recent flooding in India and Japan. Thousands of square miles of forest are burning in Sweden and California; in Greece last month ninety-one people died trying to escape fires close to Athens. From Tehran to Cape Town, water shortages threaten public health. In Zimbabwe, the minister of finance turned to Twitter to crowdfund the response to a devastating cholera epidemic. In Flint, Michigan, in the aftermath of cynical government mismanagement, the pipes remain corroded, lacing the water with lead, as is the case in low-income housing projects across the United States. In many parts of the former Soviet Union, chemical runoff has contaminated the groundwater. More than thirty tons of plastic debris washed up on beaches in the Dominican Republic in July. The World Health Organization (2016, 66) reports that one million people in China died from ambient pollution in 2012. The toxic and radioactive aftermath of war has transformed the soil, air, and water, damaging people, plants, and animals from Vietnam to Iraq to Colombia. Agribusiness is doing likewise. Meanwhile, the craven destruction of Yemen proceeds unchecked.

How are we to measure future health in a present that is so anxious, facing a future so uncertain? The terms of public health must shift accordingly. Dreams of satiety, safety, and well-being are proving more complicated than public health and development proponents had once imagined. Clean water, abundant food, and access to effective medical care and housing still elude many. Even among people like me, who are fortunate enough to take food, water, and shelter for granted, these once seemingly unambiguous elements of the good life are revealing their toxicity and their long-term scarcity, under the sign of 'planetary health'. The usual metrics of safe deliveries, numbers vaccinated, micronutrients consumed, and increased life expectancy won't do. Zero-sum games arise. Collateral damage abounds. Fantasies of control run up against the messiness of reality and overwhelming doubts about the future. Who is responsible to whom? How and what are we to measure?

For a long time now, a certain economic logic has held sway: the master calculus of future health (in fact, future well-being more broadly) is growth. So too a techno-optimism imagines the future as a time of unfolding and ever more elegant solutions to the problems that plague us. Yet the progressive telos that encompasses these dispositions increasingly seems built on a house of cards. The essays collected here break open these logics, revealing their fault lines and fissures. They reveal questions about materiality and temporality that must be addressed if we are to take the measure of future health. Thinking through materiality reveals that we are in the age of something I call 'self-devouring growth'. By this I refer to the collateral effects of escalating, consumption-driven growth, including that undertaken in the name of healthy futures. Self-devouring growth names paradoxical material relationships in which consumption continually escalates, appropriating ever more resources beyond the rate of replenishment, and producing attendant waste. It is a telos of

growth that threatens to unleash a catastrophic future. New measures are needed to account for this troublesome fact.

Let me offer an example to suggest how seemingly benign growth can in fact be self-devouring. What if, following the logic set by the brilliant work of Lochlann Jain (2013), one were to think about the problem of cancer in the United States? One could see that the response to this epidemic has been growth. Over the past half-century, cancer research and treatment have exploded across the landscape and consciousness of the United States to the tune of billions of dollars. These are central but not isolated nodes in that far-flung global formation: the cancer industrial complex. There has been a proliferation of cancer treatment centers, competing for patients and investment through advertising on roadside billboards, in airport atriums, and in popular media. Steel and aluminum, glass and plastic, vast quantities of water, aggregate, cement, paint, copper pipes, and wiring are used to build new wings and clinics or to refurbish aging hospitals. So too is there an 'arms race' for new technologies: new scans, drugs, laboratory tests. As we know from Gabrielle Hecht (2012), uranium dug by miners with little access to oncology in Niger or Gabon will fuel new therapeutic and diagnostic machines in other parts of the world.

Hidden in plain sight, just off stage, are heaps of discarded plastic tubing and gloves, radioactive waste, pharmaceuticals leaching into the ground water, enormous generators belching out carbon and carcinogenic particulate, and used printer cartridges and batteries. Jet planes and private cars bring patients and visitors back and forth to cancer centers, and somewhere in China factory workers make endless piles of stuffed bears out of synthetic materials, not to mention Mylar balloons, stamped with slogans to cheer patients along. Meanwhile in Colombia, as Emma Shaw Crane (personal communication) is tracing, workers stand in clouds of pesticide, growing roses that they will then cut, wrap, and send by aircraft to the United States, where they will be dispersed across hospitals in vases and glass jars alongside the stuffed animals. Tons of antimicrobials – soaps, cleaning solutions, pharmaceuticals – will be used, although they create a vicious circle of extermination and resistance, and are part of a cycle by which the hospital acts as a growth medium for new microbial pathogens. In Ohio, workers at the Abbot Laboratories plant will mix water, corn maltodextrin, canola oil, soy protein isolate, and a host of other flavorings and chemicals to be canned into single servings of Ensure, a nutritional drink. Pallets of cans will be loaded onto trucks and sent across the country for nauseated and/or wasting cancer patients to sip. Some on the Abbot assembly line will go bankrupt paying for their own cancer treatment. I could go on, but surely you get the point. The future imagined by growing cancer research and treatment is narrowly defined, unsustainable, and paradoxically carcinogenic. Widening the scope to incorporate collateral effects reconfigures the calculus of measurement. This is not to say that cancer treatment is not an imperative. Of course it is. But still, we might ask ourselves: how can it best be organized in the interest of future health?

The essays collected here unfold these collateral effects and uncertain futures in important and telling ways. As the authors describe, techno-optimism is alive and well. Even when the technologies are not yet up to the task, they are already shaping future health. They are creating new objects of care, like robots and AI versions of deceased human friends (Farman), virus samples (Lowe), data sets (Duclos), fictive numbers and financial instruments (Erikson), genetically modified plants (Calkins), trans-species psyches (Ticktin), and new 'versions of health and bioethics' as well as new 'forms of vulnerability' (Farman).

Abou Farman describes a vision of future health beyond the carbon barrier in which human life is rendered porous and merges with nonbiological materials such that the distinction between the two is overcome. This move is at present still an imagined one. Consciousness will be uploaded onto a server; nanobots will course through the body, repairing cells and extending life, until the person is redistributed across platforms such that life and death, human and machine, will no longer be binaries at all. The goal is immortality. That this goal is elusive, frozen crania and 'Roman bot' aside, is less significant at present than the diffuse effects of such a vision, backed by Silicon Valley capital and its inevitable bro-tastic hubris. Personhood, consciousness, interiority and exteriority, time, security, and the very meaning of health: all these and more are up for grabs. And so too, as Farman suggests, is the nature of care and expertise, as software engineers and technicians become medicine men.

Silicon Valley is modeling visions of future health at the level of the population as much as of the individual. Yet as Vincent Duclos's article in this collection suggests, the merging of virtual and material human activity hasn't so much crossed the carbon barrier as it is revealed by the differences in the human activity on either side of it. While the digital and the biological shape each other, the distinction between the two modes of virality matters, and biology remains the relevant ontological platform of future health. Perhaps most fascinating, Duclos reveals that it is anxiety, that feeling of postmodern life, which traffics across the carbon barrier with ease.

Lest we forget, these digital technologies require a vast material infrastructure of support. They too are easily caught up in the cycle of self-devouring growth. Mining data in Silicon Valley is predicated on the mining of minerals like coltan, which is used in cellphones and computers. Here the extraction of a finite resource to fuel a multibillion-dollar industry threatens long-term environmental harm and is predicated on abusive and violent labor conditions in the mines in eastern Congo. And, while one can hope to cross the carbon barrier, one still must emit carbon to do so. In fact, the vast bunker-like data centers that sustain the internet are anything but ethereal. In 2015, the *Guardian* newspaper reported that data-center web servers produced approximately the same burden of greenhouse gases as global air travel (Vaughan 2015). The 'cloud' is rather toxic. Just ask anyone who lives near

the waste dumps where old computers are heaped (though one suspects the 'sentient robot' Bina48 in Farman's piece will get a proper burial), shipped out of sight of those who can afford to upload their consciousness. One person's technofantasy is another's daily nightmare.

The same could be said for those massive systems of self-devouring growth we call industrial food production. The Green Revolution was not so green after all. The collateral threats to future health abound; they are unavoidable and built into the very systems of growth. Think, for example, of the insatiable use of water in California's almond plantations, the pesticide runoff in industrial wheat and soybean farming (Cypher, n.d.), or the clear-cutting of ever-new tracts of rainforest, our planet's very lungs, for monocropped agribusiness plantations.

Botswana, Africa's largest beef exporter, offers a clear example (I elaborate more fully in Livingston 2019). British colonialism had rendered Bechuanaland (as Botswana was called) a labor reserve for South African industry. An oppressive colonial system of taxation and male labor recruitment to the South African mines combined to deplete many households of necessary labor and to rework systems of food security such that malnutrition and frank hunger were rampant for much of the twentieth century. This resulted in high death rates for children under five and overwhelming comorbid synergies with tuberculosis and other infectious diseases. At independence in 1966, Botswana was one of Africa's poorest countries; its nascent economy was mainly dependent on migrant labor remittances and a tiny beef industry that the British had encouraged during their own postwar hunger. Within a few years, the discovery of diamond wealth and its judicious development set off a decades-long period of spectacular economic growth. The standard of living began to rise, and the government provided important supports, like food baskets, for its most vulnerable citizens. This was without question a good thing. Over time, the basic diet has changed in response to urbanization and changes in food production, including the growth of the beef industry. Batswana now consume far more beef than before, as well as more processed food, like sugar and white bread. Protein-energy malnutrition has been eclipsed by new problems of obesity, hypertension, diabetes, and cancer. These are measures of future health. There are others.

The predictable rise of chronic illnesses is not the only unintended effect of the focus on economic growth, one that we might still weigh quite favorably compared to rampant hunger and child mortality. A far more dire side effect looms, driven in part by the growth of the cattle economy. Cattle had long been a crucial form of wealth, the basis of social reproduction (through bridewealth and elaborate systems of loans) and aesthetic pleasure for Batswana. Oxen plowed the fields and fertilized them with their dung. Soured milk was a dietary staple. Beef was rarely eaten except when an animal was slaughtered on a ritual occasion. People admired cattle as beings of tremendous beauty; they recognized them as

interspeciated familiars (hence cattle could stand in for humans at ritual sacrifice, could be exchanged in bridewealth, etc.).

Beginning in the 1950s and expanding greatly after independence, however, the turn to growth saw the development of a beef industry. The reorientation of the national cattle herd into an export-oriented growth system has resulted in the concentration of the national herd into the hands of a small cadre of wealthy cattlemen. Most seriously, it has meant the sinking of the water table as thirsty cattle drink from boreholes scattered across the veld, draining the underground aquifer faster than it can recharge, essentially mining the groundwater. This is a critical problem in arid Botswana, where the new abundance of beef is contributing to a long-term shortage of water.

It has also meant new forms of cattle rearing oriented toward beef export. The expense entailed in producing beef through industrial forms of growth has concentrated the cattle population in ever fewer hands, such that a select few ranchers own vast herds while more than one-third of households no longer own any cattle at all. The lifecycles of the cattle are accelerated and monitored through a sophisticated veterinary public health system that ushers tagged and numbered cattle through cordon fences, vaccinations, feedlots, and onto trucks that transport them to the national abattoir for slaughter and subsequent export. That system produces desertification through overgrazing and blocks migration paths for browsing herbivores like antelope, which die at the cordon fences in great numbers. The evisceration of grasses in turn makes it more difficult for the aquifer to recharge even as more cattle drain it. Meanwhile, the cattle produce tremendous quantities of methane, a greenhouse gas, by belching and farting in their industrial feedlots. The trucks and planes that make up the global beef distribution system contribute their share of carbon as well, all of which combine to produce rising temperatures and an accelerating drought cycle. We are in the age of the fartopocene, sweating in fragrant clouds of our own making.[2] In other words, human obesity, now so prevalent, may prove temporary, much like diamond wealth. If the water table continues to be mined past its reach, as temperatures continue to rise, producing drought and evaporating surface water, this may portend a future return of hunger on a massive scale.

And Botswana is a small player. In fact, a 2018 study by the nonprofit Institute for Agriculture and Trade Policy and GRAIN (a small international nonprofit organization that works to support small farmers and social movements to achieve community-controlled and biodiversity-based food systems) suggests that annual greenhouse-gas emissions from the

2 I am grateful to Abou Farman for coining the term 'fartopocene'.

five leading meat and dairy corporations collectively have surpassed those of BP, Shell, or ExxonMobil. Meanwhile, global meat consumption continues to rise at astonishing rates. Humans, in turn, are conjoined to eat differently, and their bodies are transformed, dictating new concerns for future health both at the level of the planet (Kosek 2010) and the human population (Solomon 2016; Perro and Adams 2018; Yates-Doerr 2015). As with cancer, this is not to say that any measure of future health can ignore the problem of hunger. But any solution must take into account its collateral effects, not only its intended effects.

As Celia Lowe elucidates in her article here, vertically organized poultry production, complete with intensified biotechnical inputs, not only grows chicken flesh for the global market at an ever-growing rate and volume; it also grows new viruses and vulnerabilities, like H1N1 influenza in Indonesia. Yet under the sign of biosecurity, global governance agencies focus their interest directly on viruses as objects of intervention, cleaving them from the industrial growth structure that produced them. In the process, as Lowe so brilliantly shows, global governance security and Indonesia's defense of its viral sovereignty both miss their mark through their narrow focus on the virus to the exclusion of the system in which it is fostered.

Yet hope for biotechnical solutions to the very real problem of hunger persists amid ever more sophisticated technologies of intervention, like CRISPR-Cas, used in agricultural biotechnology to 'improve' Ugandan bananas by fortifying them with micronutrients. Sandra Calkins shows how this model of future health, no less than the biosecurity model, operates around what she aptly terms 'a compartmentalized biomedical model of health', in which the banana or even the micronutrient is studied in isolation from the dense web of relationships constituting it. She contrasts this mode with older Ugandan ideas about well-being that emphasize relationality so as to foster growth that is not self-devouring. Calkins's discussion of these ideas reminds us that anthropology is well situated to imagine other futures, other measures beyond those that operate through compartmentalization.

Susan Erikson's description of the Pandemic Emergency Facility, a new financial instrument, as the very perversion of the kind of healthy growth that emphasizes relationships rather than compartmentalization takes us to the questions of ethics, of morality, that saturate the ground of future heath. Global governance has been ceded to the logic of profit. There are long and violent histories to these formations (Ticktin, Erikson). We should not be surprised to learn that sometimes under the rhetoric of concern a cynical self-interest lurks. When the Indonesian health minister claims viral sovereignty, recognizing that Indonesians may well have to purchase medicines made out of their donated viral samples, she is, among other things, articulating the colonial roots of global health. Other measures of future health are being forged in the long shadow of the Black Atlantic, as Erikson starkly reminds us. If the transatlantic slave trade was an early and devastating example of self-devouring growth,

perhaps it should not surprise us that some of the same calculi of future making appear in contemporary measures of future health, for example, the move from commodifying West Africans in the slave trade (and then insuring those 'commodities') to producing new modes of profit, such as a market for financial speculation about their deaths. This system of profit and public health runs on numbers, numbers that, as she says, are also a fiction, given the impossibility of their accurate collection. This turning of the number, rather than the person, into the object of care is an integral part of the technologies that institutionalize self-devouring growth.

Is financial incentive a necessary driver of concern, or are there other ethics, other imperatives, other feelings that can animate measures of future health beyond self-devouring growth? Miriam Ticktin's thoughtful form of speculative critical hermeneutics begins to point the way. Building from a web of genealogies of categorization and approach (the social, the humanitarian, the planetary), Ticktin thinks alongside the One Health model, which was designed to address the problem of compartmentalization directly. She recognizes those violent histories as shared resources, as ways we already know and recognize one another, as the basis of a planetary biology, of an ethics of care that is honest.

Radical economists and others who advocate an ethos of degrowth, including theorists from the Buen Vivir movement, explain that the focus on growth is a depoliticizing move (Kallis 2018, 71; Latouche 2009). Rather than, say, workers and factory owners fighting over the distribution of profit, workers are conjoined to ally with industry to advocate for growth as the means by which their share will increase or at least remain stable. The historical record shows that this is often a false move. We see this depoliticization in my cancer example, in which a focus on growing the cancer research and treatment industry diffuses questions about the collateral effects of this growth and draws political attention and energy away from a focus on carcinogenic capital. Degrowth theorists further remind us that economic growth is part of a progressive telos that imagines that the future can be perfected through a combination of planning and technological control. In the process of fearlessly pursuing this goal, the commons have been eviscerated, and what had previously seemed like regenerative elements of our shared planet (breathable air and potable water, say) are proving finite. Growth has begun to show its self-devouring nature.

Is there a healthy model of growth? If so, what does it look like? I have no clear answer, I fear. To be sure, capitalism and empire are both forms of self-devouring growth; consider the carbon footprint and toxic detritus of the US military, a growth machine as well as a growth enforcer if there ever was one. Yet it is hard to imagine beyond such systems, despite the imperative to do so. I can say that redistribution is in order and should become the metric that matters, displacing growth, but you will recognize immediately that this would

require a political vision and will that feels ever more elusive in our dwindling present. Normative growth would have to be part of an expected cycle of decay and death and regeneration, as it was in peasant systems in which waste was folded back into production. This model of growth was cyclical and very different from imagining an ever-expanding zone of commodity production and consumption. Yet such a system seems hardly possible given current regimes of land tenure and neocolonial capitalism. So too, any romantic vision of that past is also a false move. There was and is no Eden to which we humans might return, nor are technologies unwelcome just because technopolitics and techno-optimism are part of the same deflecting, depoliticizing move. But as climate change unfolds, we can expect that economic activity will eventually and necessarily shrink, as will bioproductive space.

Grow the market! Even if it is a market of human beings, even if it is a market of poker chips wagered on their deaths. Grow the food supply! Even if that process of growth is poisoning the planet, even if the problem of food distribution remains such that much food sits in warehouses or rots in landfills. Even if the processes of growing animals threatens also to grow new pathogens, even if growing animals often means culling them by the millions in mass prophylactic slaughter. Grow the machines! Even if the machines may someday grow us. The problem of self-devouring growth is a pressing one. No measure of future health can discount it. No measure of future health can cleave a single metric from the welter of relationships that produce it, from the material resources that constitute it.

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