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Toxic Tropics: Purity and Danger in Everywhere in Everyday Life

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Cover Page Footnote

I am grateful to the Mellon Foundation for a “New Directions” Fellowship in 2017-2018 that enabled me to take a series of courses in toxicology and environmental epidemiology. My daughter Adelaide, a born inventor, provided further insights into the hazards of everyday household “hacks.”

Crib Notes

Toxic Tropics: Purity and Danger Everywhere in Everyday Life

Liza Grandia

ABSTRACT

In contrast to popular images of the tropics as verdant Edens, forest dwellers face various pollutants with little-understood environmental health impacts. Drawing upon long-term ethnographic research in northern Guatemala through the lens of Mary Douglas' work on purity, danger, and culture, this paper describes how the inventive re-use of modern waste exposes rural people to new and unknown toxic substances from "matter out of place." While environmental justice literature has emphasized industrial, extractive, and military disasters, this note draws attention to the less dramatic yet lethal pollutants encountered in the everyday lives of the rural poor through "chemical trespass."

INTRODUCTION

Northern Guatemala is a microcosm of the major environmental problems that indigenous peoples face throughout the world. Neglected issues that beckon further investigation include: the location and legacy of radioactive and hazardous waste barrels once dumped in Petén (No author 1992); leaks from oil and gas pipelines across the region; chemical dumps from secret narcotic drug laboratories (Escobar 2014); the open sewage draining into Lake Petén Itzá; the 2015 ecocide of the Pasión River watershed from a pesticide spill of a palm oil plantation (Solano 2015); and the general misuse of pesticides banned in the U.S. but nonetheless exported legally to the Third World (Grandia submitted).

What interests me herein are the mundane, the ordinary, the every day, and the pervasive problems of rubbish and its unpredictable re-use—which, compared to the injustices above, may seem insignificant. I nonetheless hope this Crib Note about the quandaries of trash disposal in the Third World periphery may contribute to a re-envisioning of environmental hazard as part of everyday life in all places, whether rich or poor. For rural people, there is no way to dispose of non-biodegradable trash except by burning, burying, or leaving it on the earth's surface (Figure 1). While Google Scholar draws twenty thousand articles when queried about the toxicity of dioxins left in the soil from Agent Orange, the global public health question of dioxin residues from burning plastic trash pulled only a handful of studies (Cogut 2016; Wiedinmyer, et al. 2014; Zhang, et al. 2011).

Located far from markets, country folk also inventively re-use objects in ways wealthy urban consumers—for

FIGURE 1. Backyard trash burning

whom the products designed—would never imagine doing. From anecdotal observations made over long-term research, I will describe uncomfortable, if not shocking, examples of how rural Guatemalans through regular use and creative re-use of worn objects may be ingesting or absorbing new and unknown toxic chemicals with potential for chronic, cumulative, and multigenerational health impacts. Like the epidemic diseases that decimated native populations of the Americas and which often spread in advance of the onslaught of European armies, traders, mercenaries, priests, and settlers (Crosby 1993), modern synthetic chemicals are like the new "trinkets and beads" diffusing into the landscape and bodies of people on the edges of empire (Walker 1996).

With typical double standard, civilization frowns on those who live near trash that is strewn inappropriately—whether the "white trash" of my native Alabama who leave rusting cars on their house lots, or slum dwellers and trash pickers living in the dumps of urban megacities. Trash itself has become the subject of repeated inquiry and exposé—from Rathje's (1992) quirky archaeological excavations into Arizona landfills to investigative journalism following the trajectories of waste streams—especially e-waste—around the planet (Leonard 2011). As Moore (2008) argues in the case of garbage strikes in Oaxaca, the piling of trash in inappropriate places betrays modernity's narrative of perfect disposal. Another robust set of environmental justice scholarship shows how the classification and siting of trash correspond inequitably with class, race, and other indices of marginalization and exclusion (Bullard 1990). Still, others harness the subject of waste for philosophical and semiotic reflections on modernity itself (Culler 1985). A collaborative online hub, "www.discardstudies.com" explores how perceptions of waste reflect broader socio-cultural, political, and power dynamics.

Given existing racial stereotypes about "trashy" people, in this paper, I will purposefully reflect an ethnographic "mirror" (Kluckhohn 1944; Nader 1989) onto United States culture and society to show how privileged homes are also everyday sites of unpredictable absorption and accumulation from cocktails of hundreds of little-understood chemicals in common consumer products. Lest readers cringe and condemn my Guatemalan and Belizean subjects as environmentally ignorant, environmental justice scholarship needs to "study up" (Nader 1969) to place the follies of the consumptive lifestyles of the global North in the same frame as those who suffer from environmental injustice (Johnson and Niemeyer 2008). A comparative discussion is also crucial because consumer products cross borders, and the United States' failure to regulate its corporations has left billions of others around the world vulnerable to our shoddy toxics standards.

APPROACH

As a mini-memoir of my life in the "**toxique**" **tropiques** (cf. Levi-Strauss 1961), this article draws upon seven years of fieldwork since 1993 from five different villages in northern Guatemala and southern Belize—primarily among Q'eqchi' speakers, but also with Spanish colonists. As an embedded female ethnographer, I always lived with a family, which afforded me unique insights about the intimate hazards of household life. For four years, I commissioned and maintained a thatched-roof hut on the outskirts of a frontier town as my writing base between long village stints. When

novice organic solutions failed to solve my constant tropical housekeeping problems of vermin and bugs, I sometimes succumbed to local advice about innovative chemical applications. To my retrospective horror, for instance, fearing that my roof might otherwise collapse from termites, I painted its support beams with burnt motor oil. I recorded and coded all this qualitative and experiential data about toxic exposures alongside detailed field notes on agrarian and biodiversity issues that were the primary focus of my rural fieldwork as an anthropologist. Comparative United States consumer information derives from my hobby reading as a cancer survivor and environmental health activist.

Coming of age during the 1990's Earth Day fervor, I followed *50 Simple Things You Can Do to Save the Earth* (EarthWorks Group 1989) like a Bible. Through this admitted bias of white environmental privilege, issues of village litter transfixed my attention when I first volunteered for an international biodiversity conservation organization in northern Guatemala. I was sent to live as an extensionist in a rainforest village called Atelesdale in The Central Maya Biosphere Reserve and was assigned the task of creating a program of environmental education in the local primary school. I began my duties with a trash collection contest that was implemented in a short recess activity. The two hundred participating schoolchildren generated three enormous hills of refuse and I -the young gringa- impetuously lacked a plan for the disposal of the collected waste. The parent association and teachers suggested burning it—as rural people typically do with their plastic trash. However, even without any training in toxicology at that time, unleashing acrid smoke and ash in the schoolyard appeared impolitic. Through deliberation, we decided that the older schoolboys would aid me in digging a hole with a pickaxe on the outskirts of town alongside a lonely stretch of road to which villagers still refer as Liza's Landfill in homage to my folly. This experience debarred my romanticism of rainforest living and gave me insight into other toxic aspects of the tropics.

RURAL TRASH PRACTICES

By necessity, indigent individuals are ingeniously frugal. Their reuse of materials goes beyond recycling into the domain of what urban hipsters refer to as "upcycling" or a creative "hack" (meaning: the conversion of waste into new materials or products with higher use value than the original item). With improvisational informality—or what Scott (1998) theorizes as **métis** (a French term for practical adaptations)—they utilize tools, vehicles, and consumer products well past planned obsolescence. I was, for instance, mesmerized by Don Vicente Chub's kinetic skill and patience in fashioning recycled cordage from an old gunnysack with merely a board and kitchen ashes for lubrication (Figure 2).

FIGURE 2. Q'eqchi' elder re-spinning plastic twine

Unfortunately, some refashioned items and technologies can do more harm than good. These are but a few examples of questionably re-purposed items that I happened to observe and write down:

- spent batteries used as infant teething toys;
- tamales steamed in pots lined with old garbage sacks;
- fishing hooks made from the inside of an old battery;
- old shoe soles, Styrofoam cups, plastic containers, and soft drink bottles used as fire-starters for the morning hearth;
- smoky home-made kerosene lamps made from liquor bottles;
- re-purposed pesticide barrels as waste bins, rainwater collection vessels, water delivery for ranch workers, or bathing water storage for homes;
- battery acid applied to leishmaniasis sores and other "home remedies" like using agricultural pesticides on lice or skin rashes;
- bleach bottles regularly recycled as water containers;
- and a tightly-capped pesticide bottle also being repurposed as a water bottle by a schoolgirl in Atelesdale.

Beyond pesticides, other contaminants seep into food through cooking and food storage in modern crockery. Aluminum pots can leach into food (Nagy and Jobst 1994) with worrisome links to Alzheimer's and other neurodegenerative diseases (Perl and Moalem 2006). Hot foods may be then served in plastic (typically containing Bisphenol-A , or BPA) or melamine (a composite of resin/formaldehyde) vessels. When heated past 260 degree Celsius on electric stoves, PTFE-coated teflon skillets have been shown to emit gas byproducts like trifluoroacetate at levels high enough to kill pet songbirds (Rachel Carson Council Inc. 2015). Rural wood stoves easily double those temperatures.

Cooking fire management presents other problems. To ignite damp wood for the morning hearth, women may douse it with kerosene or burn petroleum-based trash—both of which may then contaminate the ash and coals upon which they directly reheat tortillas throughout the day. Women and their young children (who compose half the population of developing countries) are thus disproportionately impacted by pollutants burnt in household fires or emitted from cookware (Sims and Butter 2002). Even organic fires emit significant particle smoke; the World Health Organization estimates that working over an open hearth is the equivalent of smoking two packs of cigarettes a day.

Laundry is another repeated area of gendered toxic exposure—though again I bracket the foremost hazard for women of washing pesticide-laden clothing. All commercial detergents available in northern Guatemala emit synthetic fragrances made from neurotoxic petrochemicals. Additionally, most rural women hand launder in cold water and apply copious amounts of bleach sold in single-use plastic bags, because this magia blanca (white magic) saves them from strenuous scrubbing (Figure 3). Bleach bags are either discarded at the washing site (a well, river, or lake) or burned with household trash. The application of bleach to drinking water is also another method of sanitization—it prohibits any parasites and bacteria from cultivating. I followed this practice for years in a polycarbonated, BPA-containing Nalgene bottle, until I became aware of the potential risks of chlorinated Bisophenol A on the body's endocrine system.

Having saturated consumer markets in the global north, corporations have turned their marketing machines to the poorest of the poor to access what they call the "Fortune at the Bottom of the Pyramid" (Prahalad 2004). Advertisers coercively persuade poor people to buy "tawdry idiocies" (Papanek 1971) beyond their means and without clear pathways of disposal. With hyper-Fordism cloaked as "philanthrocapitalism," corporations are hawking consumer items in tiny quantities at grotesque prices per unit to people living in absolute poverty. Hence, as I heard a young Q'eqchi' woman remark at a civil society consultation with a visiting World Bank

FIGURE 3. Riverside "magia blanca." Credit: Sam Moody

official, "Before they killed us with weapons, and today, it's with money . . . day in and day out" (Fieldnotes 2011).

POLLUTION IN PEOPLE

Over the twentieth century, corporations have invented and released about 85,000 substances previously unknown to humankind, with another two added almost every day. The only United States law governing chemicals in consumer products is nearly a half-century old. When passed in 1976, the Toxics Substances Control Act (TSCA) rubber-stamped the 62,000 chemicals already in commerce. Of those, 95 percent remain unstudied today for even basic toxicity (Baker 2008), much less carcinogenicity or other more subtle health impacts, and even less about how multiple chemicals interact as "cocktails" inside our bodies.

Although the United States Environmental Protection Agency monitors the 4.1 billion pounds of toxic chemicals that industrial facilities legally release each year, *ten times* that number of chemicals—an estimated 42 billion pounds—are brought daily into our lives, mainly through consumer products that we relentlessly touch, wear, eat, and sleep upon in our homes and places of work (Smith and Lourie 2009:10). Pollution is not just something out there that eventually decomposes, but also something inside us. In 1999, the Centers for Disease Control began monitoring common pollutants in people and found an almost universal presence of BPA and flame retardants among other chemicals of concern. Although regulators once assumed the placenta barrier protected fetuses, a 2005 study documented more than two hundred common chemicals in cord blood (EWG 2005). After a British team replicated this study, public shock at the idea of "pre-polluted" babies led the European Parliament to overhaul its risk assessment and registration processes in 2006 (Schapiro 2007). However, in the United States, the law continues to consider chemicals safe until proven guilty and leaves the burden of proof on victims, rather than polluters. People have essentially become "guinea pigs in a vast and uncontrolled experiment" on a planetary scale (Smith and Lourie 2009:4).

How concerned should we be about this synthetic trash lingering at the cellular level? Although toxicologists once assumed that the "dose makes the poison," the profession is in the midst of a paradigm shift, in large part due to Theo Colborn's (1996) groundbreaking work in the early 1990s about endocrine disruptors (chemicals that resemble estrogen and wreck the hormonal systems of both humans and wildlife). Far below regulatory levels, synthetic chemicals like bisphenol-A can: weaken immune defenses; muddle enzyme production; provoke allergies to other substances; alter the nervous system and neurochemical balances; and disrupt fetal development. From insights drawn in disability studies (Puar 2017), perhaps more than direct death or disablement, we should think of toxic exposures as inducing debility. Adding intricacy

to complexity, note that it is not always *how much* of a substance to which an individual is exposed, but often how *sensitive* or *sensitized* that particular individual may be—whether through gene, diet, contextual stress, overwork, or even historical trauma (Miller 2013).

MIRRORED DISCUSSION

In her seminal cross-cultural comparison of pollution and taboo, Purity and Danger, Mary Douglas boldly defined dirt as "essentially disorder." Because "pollution" is a relative, social category, knowledge of cultural context is essential for recognizing "matter out of place" (Douglas 1966:36). In comparing rules and structures against uncleanliness, reflexivity, therefore, becomes an imperative: "We shall not expect to understand other people's ideas of contagion, sacred or secular until we have confronted our own" (Ibid:29). Through her example of the ritual use of cow dung to cleanse pollution in India, she shows how what may be unholy in one context is perceived as clean in another.

With similar illogic, United States consumers have been trained to view synthetic chemicals as agents of "cleanliness." To create a weed-free suburban idyll (Robbins 2007), homeowners apply dangerous herbicides on lawns where their children and pets then play. To mask indoor odors with a synthetically "fresh" smell, they spray Febreze or Glade (containing dozens of volatile chemicals laden on plasticizers called phthalates known to damage sperm counts and cause other reproductive harm). Marketers induce consumers to purchase products to cover even the most pleasant of natural smells: that of newborn babies. Notwithstanding a warning label to "keep out of reach of children," Johnson and Johnson profitably sells a "baby cologne" containing numerous hazardous immunotoxicants, allergen triggers, and damaging agents to organ development. The average United States household stores an average of 25 gallons of cleaning and pest control chemicals within the home, typically underneath the kitchen sink. A simple spring-cleaning error, such as combining ammonia and bleach, can produce poisonous gases.

Like impoverished people in the global South, we also use consumer items unpredictably. If my examples from Guatemala seem fatuous, let those who have never microwaved plastic products cast the first stone of judgment. Women's magazines regularly recommend creative self-poisoning hacks like shucking corn-on-the-cob then to microwave it in saran wrap, a polyvinyl chloride (PVC) product that contains hormone-disrupting phthalates. Homemaker blogs like "10 Crazy-Simple Ways to Make Your House Smell Great" provide toxic tips to place dryer sheets behind vents or wipe down baseboards with them without wondering what the consequence might be for human health from breathing these same odors 24/7 (which incidentally emit benzene, acetaldehyde, chloroform, formaldehyde, and more) (Steinemann, et al. 2013).

Given the inadequacy of toxics regulation today, in matters of trash and chemical exposure, neoliberal-cum-libertarian ideologies about personal chemical defense through green consumerism place unfair decisions on women who are usually responsible for household welfare (Sims and Butter 2002). As any aspiring "eco" parent knows, constant vigilance can be exhausting, because babies and toddlers stuff anything at hand into their teething mouths. In setting exposure limits, regulators do not consider children's unpredictable behavior—much less how products travel across borders to people speaking many diverse languages and get used in novel ways beyond their intended design.

CONCLUSION

In this essay, I have focused on how the inventive and unpredictable re-use of modern waste and consumer items exposes poor people—and everyone—to new and unknown toxic substances that now trespass silently and inexorably into humanity's bloodstream. Human bodies have never before encountered as many synthetic chemicals as they are encountering

today. Despite metaphors to the contrary (Martin 1994), the immune system is not infinitely flexible. When environmental health risks have become such a universal threat—wherein lies the hope for a new paradigm of environmental thinking?

The ubiquity of chemical trespass is an intriguingly rare example of an actualized Rawlsian dilemma of mutual vulnerability. In John Rawls' seminal text, *A Theory of Justice* (1971), he proposed a political theory of equality based on a birth lottery or what he called "a veil of justice." Were people blind to their circumstances, he suggested, they would always opt for equality in forming a social contract. While this hypothetical scenario could never occur in the real social world, in environmental matters, most people *are* blind to the toxic burdens they carry at the cellular level.

I have purposefully juxtaposed Guatemalan and United States consumer behaviors throughout this paper because affluence is not an environmental shield. Even the cult worshipped chief executive officer, Steve Jobs can die of pancreatic cancer. I conjecture that until privileged people become more concerned about "chemical trespass" (Doyle 2004) into their bodies, little will be done about the even greater environmental injustices faced by indigenous, rural and other marginalized peoples. In exposure to everyday hazards, along with the rural poor of northern Guatemala, we are the 100 percent.

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I am grateful to the Mellon Foundation for a "New Directions" Fellowship in 2017-2018 that enabled me to take a series of courses in toxicology and environmental epidemiology. My daughter Adelaide, a born inventor, provided further insights into the hazards of everyday household "hacks." I am grateful to the two anonymous reviewers for their critiques and insights.

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