Toward a Feminist Postcolonial Milk Studies

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Overcome with diarrhea and intestinal cramps, villagers in Colombia and Guatemala conclude that the powdered milk rations donated by the United States must not be food and use the powder, mixed with less water, to whitewash their huts. In India’s Kerala province, a dairy farmer stares with dismay at the huge Swiss Brown cow that has replaced her native dwarf Vechur cow and exponentially increased her costs for feed and veterinary bills. Living along the industrialized Saint Lawrence Seaway where General Motors has been dumping PCBs and heavy metals for over twenty-five years, Akwesasne midwife Katsi Cook starts the Mothers’ Milk Project after discovering alarming levels of persistent organic pollutants (POPs), DDT, and flame retardants in Mohawk mothers’ breast milk and in the body fat of Beluga whales. Fifteen years later, Sandra Steingraber passes a glass of her own breast milk among the delegates at a United Nations panel hearing on the reproductive health effects of POPs, emphasizing the bioaccumulation of toxins at the top of the food chain, in the bodies of nursing infants. In 1994 milk produced with recombinant bovine growth hormone (rBGH)—Monsanto’s Posilac—appears in US grocery stores, approved by the US Food and Drug Administration (FDA) and inspiring protests from small farmers, consumer groups, environmentalists, and animal advocates alike.

What critical framework is sufficiently inclusive to describe these uses of milk across nations, genders, races, species, and environments? Because milk is produced by female mammals, a feminist perspective seems to offer a logical foundation for such inquiry. From the start, feminism has been a movement for justice: at its heart is the centrality of praxis, the necessary linkage of intellectual, political, and activist work. Feminist methodology puts the lives of the oppressed at the center of the research question and undertakes studies, gathers data, and interrogates material contexts with the primary aim of improving the lives and the material conditions of the oppressed. Using standard feminist methodology, twentieth-century vegan feminists and animal ecofeminists challenged animal suffering in its many manifestations (in scientific research, and
specifically in the feminized beauty and cleaning products industries; in dairy, egg, and animal food production; in “pet” keeping and breeding, zoos, rodeos, hunting, fur, and clothing) by developing a feminist theoretical perspective on the intersections of species, gender, race, class, sexuality, and nature. Motivated by an intellectual and experiential understanding of the mutually reinforcing interconnections among diverse forms of oppression, vegan feminists and ecofeminists positioned their own liberation and well-being as variously raced, classed, gendered, and sexual humans to be fundamentally interconnected to the well-being of other nondominant human and animal species, augmenting Patricia Hill Collins’s definition of intersectionality to include species as well.

Another scholarly field well positioned to address milk, food studies argues that food history is a history of ideas, and milk—a commodity that the American dairy industry has marketed as “natural” and “wholesome” —is not a homogeneous entity but one that has various meanings and compositions in different historical and cultural contexts. Both Deborah Valenze’s Milk: A Local and Global History (2011) and Anne Mendelson’s Milk: The Surprising Story of Milk through the Ages (2008) trace Western food history over the last five thousand years, arguing that milk has been crucial to the survival of many Eurasian cultures, whose people could digest animal-derived lactose from cows, sheep, and goats. Religious histories from Hinduism to Catholicism show the importance of milk in spiritual practices past and present: in India, milk is still used to feed the elephant-headed god of wisdom, Ganesha; in medieval Europe, St. Bernard had a vision of being miraculously fed by the Virgin Mary’s breast milk.

Food histories of Great Britain and the United States in the nineteenth and twentieth centuries confirm that from 1850 on, milk was commodified on a large scale, with its highly perishable liquid form inspiring urban dairy production, railway transport, and finally doorstep delivery. Until its sterilization or pasteurization in the 1920s, milk was one of the major public health issues of the latter nineteenth and early twentieth centuries, transmitting infections of various types, along with epidemic diseases such as scarlet fever, typhoid, and tuberculosis. Milk-fed infants also faced higher morbidity and mortality rates, yet cows’ milk continued to be used in orphanages (where no mothers or wet nurses were available) and in families alike. In her chapter “Why Not Mother?” Melanie DuPuis argues that “the rise of urbanization and the rise in artificial feeding of children went hand in hand.” US women chose not to breastfeed for reasons that differed across class: middle- and upper-class women were allegedly fragile, with “nerves” that would be disturbed by breastfeeding; additionally, breastfeeding took time away from their social obligations, and
combined with pressure from husbands who wanted their wives’ attentions, but were otherwise barred by social norms that proscribed sex while nursing. Both very poor and very wealthy women faced another barrier to breastfeeding: inadequate food intake, a result of either poor diet or cultural norms for “dainty” eating. Most urban well-to-do women turned to formula, cows’ milk, or wet nurses. Working-class women could not afford such luxuries and breastfed their infants unless prevented by economic circumstances.

The pervasive availability of cows’ milk today—from grocery stores to gas stations—is a historically unprecedented product of industrialization, urbanization, culture, and economics. Without human intervention, fresh cows’ milk is largely unavailable for more than part of a year (March to November): cows require nine months for gestation, along with ample pasture and feed, to produce milk. Its availability is part of Western industrialized culture’s continuing “triumph over nature”; as Atkins concludes, in Britain milk was “representative of efforts to redraw the boundaries between nature and society.” Far from being “the perfect food,” milk offers a narrative about progress and perfection that embodies “the politics of American identity over the last 150 years” argues DuPuis, linking “the perfect whiteness of this food and the white body genetically capable of digesting it.” Comparing cows’ milk with human breast milk, Andrea Wiley explains that cow’s milk must be fortified to offer Vitamin D, and has “more protein, minerals (except iron), and some B vitamins, and less sugar, Vitamin C, and Vitamin A.” Although the dairy industry promotes milk as a major source of calcium, a necessary mineral for growth and strong bones, the majority of the world’s human population cannot digest cows’ milk, and the claim that this milk produces strong bones and taller children is simply unsupported by the research to date. As of 2008, consumption of cows’ milk in the United States has declined to just 76 percent of what it was in 1970, while consumption of cows’ milk has increased 17 times in China and 2.4 times in India; both are developing countries where there has been a general rise in the demand for animal products as a sign of modernity and affluence.

Animal studies scholarship includes the varying approaches of posthumanism, human–animal studies, and critical animal studies, all offering a range of perspectives for addressing milk across species, though this potential remains largely untapped. A recent article in Society and Animals appears to invoke Donna Haraway’s posthumanist construction of factory-farmed animals as “workers” in its framing and discussion of dairy cows as collaborating with the dairy producer. Haraway refers to “laboratory working animals” and “working animals in the food and fiber industries” as if being the experimental animal or
the animal whose body is confined within the structures of industrial animal production were a sustainable “job” that animals might willingly choose, or resign from. From the more activist standpoint of critical animal studies, “Haraway’s work has become paradigmatic of a largely depoliticized approach within Animal Studies,” evincing a clear humanist interest in human–animal relations that maintains species dominance.

To date, the majority of research on milk comes from food studies scholars, vegan feminist and ecofeminist scholars, and feminist environmental science sources such as Sandra Steingraber’s *Having Faith* (2001) and Maia Boswell-Penc’s *Tainted Milk* (2006). Both science sources address the nutritional value of human breast milk for mother and child, the “body-burden” of environmental toxins transferred through that milk, and more specifically the environmental racism challenged by the Akwesasne Mothers’ Milk project. Advocacy groups such as Environmental Working Group and the MOMS and POPS project regularly monitor milk as an environmental indicator of health, and have found perchlorate (a rocket fuel) in every sample of California supermarket cows’ milk as well as flame retardants (PBDE), pesticides (lindane, endosulfan, DDT), and other POPS in human breast milk. This movement in environmental science affirms Katsi Cook’s insight that the mother’s body is the first environment, an insight that links the concerns of feminism, environmental justice, and interspecies justice.

Postcolonial studies offers another critical perspective, building on Alfred Crosby’s concept of “ecological imperialism” to describe both the ruthless appropriation of indigenous land—particularly violating indigenous women, queers, and animals—and the introduction of exotic livestock and European agricultural practices. The ecofeminists Val Plumwood and Vandana Shiva have pointed out the ways dualistic thinking and instrumental reasoning of the “Master Model” have constructed nature, the indigenous, and the animal as “other” to meet human (elite male) needs, and biocolonization functions as a continued practice, patenting indigenous knowledges and genetics, all under cover of “progress” through Western science and agribusiness. Environmental racism and classism exemplify additional contemporary colonial practices, linking the continued expropriation of resources and transfer of wastes to communities of color, and rural and impoverished communities around the world. Until the work of Graham Huggan and Helen Tiffin, postcolonial studies had yet to “resituate the species boundary and environmental concerns” at the center of its inquiry, examining the “interfaces between nature and culture, animal and human.”
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Taken alone, each of these fields offers specific perspectives on knowledge while overlooking others. This essay proposes bringing these knowledge fields together through a new intersectional field of feminist postcolonial milk studies, a perspective capable of interrogating the multiply complex cultural assumptions and material practices articulated through milk.

**Milk Money: Gift Economies versus Capital**

In vernacular English, to “milk” something is to take it for everything you can get—but that is an adult’s slang. For newborn mammals, mother’s milk is a priceless gift: it offers nutrition, hydration, and affection, ecologically packaged at the right temperature. Breast milk helps protect infants against common childhood diseases, including diarrhea, pneumonia, respiratory tract infections, gastrointestinal infections, celiac disease, inflammatory bowel disease, obesity, diabetes, childhood leukemia and lymphoma, and Sudden Infant Death Syndrome. Adults who were breastfed as children have lower blood pressure and lower cholesterol, lower rates of type 2 diabetes and obesity, and exhibit higher intelligence and stronger filial bonds of friendship and empathy. Benefits for breastfeeding mothers include a quicker return to prepregnancy weight, temporary protection against conception, reduced risk of breast and ovarian cancer, and lower rates of obesity.

But these benefits are not equally utilized by all populations across race and class, nor have they been measured in breastfeeding relationships that are commodified to cross race and class boundaries: for example, did the women enslaved or the wet nurses hired to breastfeed infants of the upper class enjoy the same bio-psycho-social benefits as they would have in nursing their own offspring? Did the upper-class infant enjoy the same nutritional, emotional, intellectual benefits as she or he would have if nursed by the baby’s birth mother? And while milk sharing within women’s communities has been both a traditional and contemporary practice, this sharing is part of a gift economy among voluntary participants. Can we describe as “milk sharing” the nursing that takes places across species—as in a mother’s voluntary and affectionate suckling of an infant of another species, as was common for pigs, dogs, monkeys, and bear cubs in precolonial Polynesia, the forests of South America, and the hunter-gatherer societies of Southeast Asia, Australia, and Tasmania? Or is taking the milk of another mother—whether a human mother or a cow mother, goat, sheep, or elephant—to be appropriately described as “gift,” “wages,” or “theft”? What is milk “worth”? 


In an editorial on the economic value of breast milk, *Mothering* magazine founder Peggy O’Mara did the math, bringing together the $4 billion a year in US formula sales, the $1 billion annual health care cost-savings from breastfeeding, and the costs hospitals pay for handling donated breast milk—$50 per liter in Norway, $96–160 a quart in the United States. Using the American Academy of Pediatrics (AAP) recommended minimum of breastfeeding for the first six months of life, the annual number of US births (4,130,665), the amount of breast milk produced (25 ounces per day, or 140 quarts per six months), its value per quart ($96), and the percentage (13.3 percent) or number (549,378) of US mothers who exclusively breastfeed at six months, O’Mara concluded that this small percentage of nursing mothers generates $7 billion in gross domestic product. In just six months, these breastfeeding moms outstrip the economic value of two years of formula sales. Summarizing data from the AAP journal *Pediatrics*, the *Huffington Post* places the value of breast milk even higher. Focusing largely on health care costs and savings, AAP pediatricians estimate the lives of nine hundred babies would be saved along with $13 billion in health care if 90 percent of US women would breastfeed for the first six months of life, or $3.6 billion (in 2001) if only 50 percent of mothers breastfed. But today, only 12 percent of mothers follow AAP guidelines. Who are they, and why do the other 88 percent of moms stop nursing?

According to the US Centers for Disease Control and Prevention, there are racial and ethnic differences in breastfeeding, with educated middle-class Asian/Pacific Islander mothers breastfeeding at the highest rates (52 percent) at six months, followed by Hispanic mothers (45 percent), Euro-American mothers (43 percent), then American Indian mothers (37 percent) and African American mothers (26 percent). Predictably, economic pressures make these percentages even lower. Histories of racism and colonialism in the United States legitimating the rape of indigenous and African women, the theft and sale of their children in boarding schools or in slavery, and the requisite nutritional and affectional neglect of African infants when their mothers were used as wet nurses and “mammies” for white slave owners’ children all provide some historical context for today’s low breastfeeding rates. For all women, the US cultural hostility to the material realities of motherhood can be seen in the stigmas around welfare for single mothers and their children, workplace policies restricting maternity leave and flextime, women’s persistently lower wages, and a lack of national legislation correcting these phenomena. According to Ann Crittendon, becoming a mother is the most expensive workplace decision a woman can make and “the single biggest risk factor for poverty in old age.”
Yet unpaid female caregiving is the lifeblood of families, and the heart of the economy. Including child rearing, cooking, managing household finances, resolving emotional conflicts, and chauffeuring, Edelman Financial Services estimated a mother’s worth at $508,700 a year, not including retirement and health benefits.40 But in Crittendon’s *Price of Motherhood* and the book it inspired, *The Motherhood Manifesto*,41 breastfeeding gets less than two pages and is always discussed in terms of maternity leave. Admittedly, the United States has the lowest rates of maternity leave of all industrialized nations, offering only twelve weeks of unpaid leave under the Family and Medical Leave Act (FMLA) of 1993, or six weeks under the California paid family leave law, as compared with Germany’s and Sweden’s forty-seven weeks of full-time-equivalent paid leave, Norway’s forty-four weeks, and Greece’s thirty-four weeks; an international study of twenty-one nations’ parental laws found the United States twentieth out of twenty-one, only one of two nations providing no paid leave at all.42 In addition to having to pay for these job-protected twelve weeks of parental leave, new mothers face other costly and cultural barriers to continued breastfeeding: the cost of a breast pump ($269 for Medela’s Pump-In-Style electric breast pump), an office refrigerator to store the pumped milk, and workplace policies that include a lactation room and guaranteed breaks to use that room as needed.

Under these conditions, Crittendon calls the AAP breastfeeding guidelines “a sick joke.” As she explains,

In economics, a “free rider” is someone who benefits from a good without contributing to its provision: in other words, someone who gets something for nothing. By that definition, both the family and the global economy are classic examples of free riding. Both are dependent on female caregivers who offer their labor in return for little or no compensation.43

Women’s breast milk and women’s labor are part of the gift economy that is simultaneously invisible, unmonetized, and appropriated in national and international economic systems. In Africa and Latin America, village women will share in nursing to relieve other mothers to work, or to support an infant whose mother is ill, has no breast milk, or has died.44 In the United States, “lactivist” mothers have formed milk-sharing networks such as Facebook’s “Eats-On-Feets” page that allows mothers who need breast milk and mothers willing to donate excess breast milk to find each other.45 This network uses the four principles for safe breast milk sharing—informed choice, donor screening, safe handling, and home pasteurization—and proudly contrasts their gift economy with the costs of milk banks, which may charge $4.50 an ounce for handling and screening donated (i.e., free) breast milk.
When women’s breast milk is introduced as a market commodity, it fares poorly. In 2010 New York chef Daniel Angerer produced his wife’s breast milk cheese at Klee Brasserie and was promptly shut down by the New York Health Department. A year later, London’s *Daily Mail* reported that a Covent Garden store, Icecreamists, had begun selling human breast milk in a champagne glass and labeled the product “Baby Gaga.” Allegedly the woman who donated the first thirty ounces of breast milk was not paid for her time or bodily fluids, but she did have to undergo health screening; thirteen more women had volunteered to donate their breast milk as well. Reporting on his experience of eating human breast milk cheese in the *Village Voice Blogs*, Robert Sietsema reported “it feels like cannibalism” (a sentiment echoed in several other posts online) and enumerated concerns that seem representative of those expressed on the blogosphere: “human instinct” says “there’s something fundamentally disgusting” about it; excess breast milk should be donated for the nourishment of premature and critically ill babies; no one knows the effects of human breast milk on adults; and human breast milk products have not undergone the medical testing regularly used to screen cows’ milk. But from a feminist posthumanist standpoint, Sietsema’s final concern was most salient:

Women are not farm animals. Human-breast-milk cheese casts them in that role. There is nothing “ethical” about milking humans. What woman would consent to being milked for the culinary pleasure of others, unless strapped for cash? The natural result of this happening on a large scale is the exploitation of poor mothers, who will be tempted to sell milk and feed their babies formula.

Clearly, Sietsema’s remarks rely on the human–animal divide. If eating women’s breast milk “feels like cannibalism,” what does it feel like to eat other females’ milk? And what does it feel like to be a farm animal?

In a word, it probably feels like death—otherwise called “herd retirement.” In February 2012 the *Twin Cities’ City Pages* ran an article exposing “Cooperatives Working Together—a collective of America’s biggest dairy co-ops, including Arden-Hills based Land O’Lakes—herd retirement program that slaughtered more than 500,000 dairy cows between 2003 and 2010” to raise the price of milk. The program worked: the dairy industry profited over $11.7 billion off herd retirement, raising prices for American dairy consumers in 2011 and driving more small family farmers out of business. Whereas in the 1980s there were at least 8,500 small dairy farms in Minnesota, by 2007 that number had dropped to 2,000. The journalists Andy Mannix and Mike Mullen profiled some of those small farmers, like Joe Sonneker, whose grandfather cleared their 160-acre lot over a century ago and started the small dairy farm he hoped to
pass down for generations. In 2012, with Cooperatives Working Together controlling more than 70 percent of US milk production, small farmers like Sonneker feel they do not have a voice in the future direction of dairying.

Of course, neither do the cows. Since the Depression, dairy cows have been producing more milk for humans than the market could handle, and when government programs to purchase and store the excess could not keep up with the costs, the USDA instituted a Dairy Diversion Program encouraging farmers to slow down production. When that effort failed, the Dairy Termination Program was instituted, encouraging farmers to sell their herds and get out of dairying for at least five years—but then farmers not involved in the program simply increased their herd sizes and production output. East Dublin Dairy in Murdock, Minnesota, is a case in point, milking over 5,280 cows twice a day. As the Pew Commission Report on Industrial Farm Animal Production documents, the current “efficiencies” in farm production that have arisen over the past fifty years are not sustainable, and their operations create an “unacceptable level of risk to public health and damage to the environment, as well as unnecessary harm to [food] animals.”

For an animal whose natural lifespan is twenty to twenty-five years, cows in dairy production now survive only four to five years. The cow’s milk output has increased from two thousand pounds per year in 1950 to up to fifty thousand pounds of milk in 2004, thanks to bovine growth hormones, putting enormous pressure on the cows’ bodies. Artificially inseminated at fifteen months of age, a dairy cow suffers an endless cycle of pregnancy and lactation, milked two to three times daily by electronic milking machines, conditions that cause mastitis and other infections that must be treated with antibiotics. Fed an energy-dense food, she may spend her whole life confined in a concrete stall or standing on a slatted metal floor. Her calves are taken from her within hours after birth, with females kept to replace their mothers in the dairy and males sent to veal farms, where they are confined in crates so tight they cannot move, and fed an iron-deficient diet until they are slaughtered at fourteen to seventeen weeks of age. Predictably, the larger dairies also produce more manure and methane, polluting the air and water. Using Crittendon’s critique of unpaid caregiving, the industrialized dairy system is also a “free rider,” profiting at the expense of the cows, the small dairy farmers, and the dairy consumers as well.

Replacing breastfeeding’s gift economy and severing the nursing relationship between mammal mothers and offspring, the industrialized dairy system of extracting wealth from animal nature, from labor and consumers, and concentrating it in the hands of the producer-owners is not “cooperative”: in dairying, that term is now a Trojan horse, concealing the ideological character
of economics. To unmask its operation, an international, postcolonial perspective is needed.

**Mother Dairy, Mother Nature**

Most Westerners will recall Nestlé’s powdered milk campaign in Africa and India that persuaded thousands of young mothers to use powdered milk and infant formulas instead of their own breast milk, and thereby made corporate profits at the expense of widespread infant suffering, causing diarrhea, malnutrition, and death. As documented by the British NGO War on Want, Nestlé’s baby food sales representatives dressed like nurses to give an appearance of scientific credibility to their sales in the poorer countries of Africa, Latin America, and Asia, including India. Because of poverty, lack of education, and lack of adequate facilities, many mothers in these countries could not read the instructions on the formula package and did not have access to baby bottle sterilizing equipment or clean water. Instead, they put faith in the ideology of progress and the superiority of technologically advanced nations: in a colonial world, indigenous people are pressured to share the viewpoint of the colonizer, to believe themselves inferior, and to adopt the ways of the colonizer in order to “improve.” In India, multinational corporations like Nestlé and Glaxo were criticized by the World Health Organization for selling infant formulas and powdered milk, and an International Code for the Marketing of Breastmilk Substitutes was issued in 1981. Under cover of this international rebuke, an Indian national dairy corporation was quietly picking up Nestlé’s lost share of infant milk food sales. The story of Amul corporation and its engineering of India’s Operation Flood is a story of Third World elites joining First World corporations in colonial practices, with devastating effects on mothers and children, cows and calves, rural poor and small dairy farmers—a story that both parallels and exponentially magnifies the harms done to dairy farmers in the United States.

Launched in 1970 and implemented in three phases until 1996, when European dairy food aid supplies ended, Operation Flood was the invention of Verghese Kurien, initiated as a solution to a difficult market situation. In the late 1960s the European Economic Community (EEC) had a huge dairy surplus in the form of milk powder and butter, and after reconstituting some quantities and dumping others, the EEC finally sought to dispose of these products to the third world in the form of food aid. As Frances Moore Lappé and Joseph Collins explain in *Food First*, food aid has always been a colonialist extension of foreign policy, farm interests, and corporate interests; it is offered
to open future markets for commercial sales, extending the reach of agribusiness corporations and enabling First-World governing and economic institutions to control their Third World counterparts. Lappé and Collins's theory well describes the outcomes of India's Operation Flood, through the wealth and rise to power of Kurien and the Amul Dairy Cooperative.

At the time of the EEC surplus, Kurien was a twenty-year employee of Amul, India's largest manufacturer of milk powder and butter; the food aid would ruin Amul's markets. But as chair of India's National Dairy Development Board, Kurien was well positioned to orchestrate a solution. In “Imperialism through Food Aid: The Role of Third World Elites,” Claude Alvares explains that Operation Flood would not use the food aid as charity offered for direct consumption by the poor; rather, “food aid would be sold to the public, and the funds generated [would be] invested for the long term dairy development of the country.”58 Dairying would be an instrument of progress, business elites argued, as small and landless farmers would be organized into cooperatives for enhancing milk production and also enabling them to negotiate better rates for their products. India's government saw that the project would generate funds for dairying that the government could not raise, along with providing milk for the middle classes in the cities and improving the economic condition of the poor. Accordingly, the Indian Dairy Corporation (IDC) was established in 1970 to administer Operation Flood—and Kurien was appointed its chair.59

The operations and proclaimed outcomes of Operation Flood were strongly criticized by the development scholars Bharat Dogra, Alvares, and Shanti George. In his famous exposé of Operation Flood, “The White Lie,” first published in 1983 and denied via media and statistical manipulations by India's National Dairy Development Board and Indian Dairy Corporation, Alvares listed the actual outcomes of Operation Flood:

1. it created four “Mother Dairies” (in Bombay, Calcutta, Delhi, and Madras), milk-processing plants that recombine solid milk products and butter oil into milk for city people;
2. it built a national milk grid radiating from Anand to transport milk from the dairy processing plants, throwing local producers around these cities out of employment;
3. it made Amul the largest baby-food producer in India, and the strongest opponent of the World Health Organization's Code against advertising baby foods;
4. it diverted large stocks of imported commodities from the cities to Gujarat dairies controlled by Amul;
5. it made Kurien a consultant for the World Bank, overseeing a new third world expansion of Operation Flood in Bangladesh, Pakistan, the Philippines, Sri Lanka, and China.60
While the dairy cooperatives were already collecting more milk than they could sell and converting the surplus into baby food and butter, in the rural town of Kaira Indian farmers were depriving their own undernourished children of cows’ milk to sell to the cooperatives; we are not told why their human mothers were not breast-feeding or why mothers’ milk was not sufficient, though poverty and malnourishment seem likely explanations. Alvares simply reports that these Kairan farmers barely got a remunerative price for their cows’ milk.

Part of the problem had to do with the cattle: Operation Flood involved the import of European bulls, heifers, and crossbreeds. In India, cattle have multiple uses in agricultural tasks (traction, fuel, fertilizer), and though the indigenous cows and buffalo are poor milk producers compared with the exotic northern European breeds, their upkeep is minimal, and they are environmentally sustainable. While the imported breeds require special feeds and are subject to diseases that need veterinary attention, indigenous breeds subsist on local vegetation and are adapted to the climate, withstanding diseases and parasites, and calving easily without human assistance.61 But the value of their subsistence milk could not be converted into profits for Amul. Fifteen years after the third and final phase of Operation Flood ended in 1996, Kerala’s indigenous cattle population had declined by 48 percent.62

Rural women have also been harmed by Operation Flood, as the production and sale of ghee, along with its economic returns, used to be the sole province of women. With Operation Flood, the new crossbreeds required additional feeding and milking labor from women and children, and the milk was sold for cash, leaving women no economic returns and lowering their status in the family economy. Alvares cites an Indian Council Social Science study on the impact of Amul on women:

The enormous structure of the Amul complex at Anand, with a highly modern campus of steel frame, mosaic and glass, air-conditioned buildings, laboratories, gleaming aluminum and steel plants, white uniformed and capped staff, beautifully laid out gardens, sound proofed and plush seated auditoria and air-conditioned luxury buses seem very far removed from the lives of the village women whose work has made this glossy new world possible, but to which they have no entry. Not one of them has acquired mastery over the new technology that has taken over their traditional tasks of making butter and cheese for the urban consumer. They are not even aware that they are contributors to a development miracle that is assuming the size of a national movement.63

Despite these social costs, Operation Flood was celebrated by social and international elites. Bruce Scholten’s India’s White Revolution is a single-authored volume that prominently features a jacket endorsement from Kurien, copious
footnotes and quotations from Kurien, and most poignant of all, a photograph of the Amul range of dairy products, including the tiny tin of infant milk food substitute with the picture of a fat, smiling baby. But even Scholten concedes to critic Shanti George when she points out that Operation Flood’s “modernisations resulted in a net loss of women’s status,” as only men were employed in the new high-tech infrastructure.64 Even after retiring as chair of the National Dairy Development Board, Kurien remained in charge of the Gujarat Coop Milk Marketing Federation, where he had already exported Amul butter and cheese to over forty countries, including the United States. India’s “white revolution” accompanied its Green Revolution in the colonial pattern of shifting subsistence production into cash commodities for export,65 thereby destabilizing an already precarious subsistence economy (often powered by women’s work) and throwing thousands of people into real material poverty. In his book’s conclusion, Scholten reports that Kurien has been contacted by “African countries such as Kenya, Uganda, Ethiopia, Mozambique and Rwanda” all expressing interest in replicating Operation Flood.66 Such expansion may displace nomadic cattle herders such as the Maasai, whose subsistence lifestyle is well suited to their environment; for other areas, an African Operation Flood will surely affect human health and nutrition if populations have no historical relationship with cattle herding and thus have inherited no lactase for digesting milk beyond childhood.

Milk Has Something for Some Bodies

In the 1970s the Washington, DC-based Physicians Committee for Responsible Medicine (PCRM) filed several petitions with the Federal Trade Commission (FTC) against the American Dairy Council, showing data proving that advertisements promoting dairy products violated federal advertising guidelines; accordingly, in 1974 the FTC’s complaint of “false, misleading, and deceptive” advertising forced the Dairy Council to change its slogan from “Every Body Needs Milk” to “Milk Has Something for Everybody.”67 Both vegan milk critics68 and some food studies scholars69 have challenged the dairy industry’s “perfect food” myth about milk. Vegan studies are more likely to emphasize the linkages between animal-based diets and many Western diseases such as heart disease, obesity, and cancers of the colon, breast, and prostate, while both food studies and vegan studies scholars concur in observing the association between osteoporosis and animal-protein-based diets,70 an association of greatest concern to women, whose hip-fracture rates are regularly double that
of men’s. These correlations are reinforced by the fact that “as [most notably Asian] populations move to a more Western, industrialized lifestyle, which often includes dairy consumption, the risk of osteoporosis increases.” These scholars also agree on the Eurocentrism and racism of the US dairy industry’s claims for the universal healthfulness of milk.

Populations that have a historical practice of milking domestic animals (central and northern Europeans, countries colonized by Europeans [the United States, Canada, Australia, New Zealand], and Saharan nomads) have retained the enzyme (lactase) that digests lactose sugar in milk, far beyond childhood; however, the majority of the world’s populations lose the lactase enzyme by the age of four, and thus lactose intolerance is common among Vietnamese, Thai, Japanese, Arabs, Israeli Jews, and African Americans, Native Americans, Asian Americans, and Hispanic Americans. Rather than acknowledge this diversity in digestive capacities, the US dairy industry has coined the terms lactase im-persistence and lactose mal-digesters, terms that effectively pathologize nonwhite populations. In 1999 the PCRM again challenged the promilk agenda of the US National Dairy Council, this time in the Journal of the National Medical Association, a publication serving African American health practitioners, and in 2005 filed a class-action lawsuit against grocery stores and dairies in the Maryland and Washington, DC, area calling for milk carton labeling. The campaign was publicized by images of people of color clutching their stomachs, or doubled over outside a unisex bathroom, and captioned “got lactose intolerance? 75% of people do, particularly people of color. If you’re lactose intolerant, you may have grounds for a lawsuit.” Such grounds of racism in milk promotions have historical precedent. The food science scholars Wiley and DuPuis each quote histories of milk written in 1929 and 1933, respectively, to illustrate the precedence and persistence of overt racism from Depression-era claims for milk’s capacity to produce racial superiority:

[The races which have always subsisted on liberal milk diets are the ones who have made history and who have contributed the most to the advancement of civilization. As was well said by Herbert Hoover in an address on the milk industry delivered before the World’s Dairy Congress in 1923, “Upon this industry, more than any other of the food industries, depends not alone the problem of public health, but there depends upon it the very growth and virility of the white races.”]

A casual look at the races of people seems to show that those using much milk are the strongest physically and mentally, and the most enduring of the peoples of the world. Of all races, the Aryans seem to have been the heaviest drinkers of milk and the greatest users of butter and cheese, a fact that may in part account for the quick and high development of this division of human beings.
Continuing the theme of white power, patriotic milk promotion ads in the United States during World War II labeled a factory photo of workers on a milk-bottling line as “white ammunition.”

Why has the dairy industry not been held accountable for its blatant ethnocentrism? Beyond a nexus of cultural hegemony and economics, one source points out the conflict of interest caused by allowing the same person to chair the National Academy of Sciences’ Food and Nutrition Board, consult with several dairy-related companies (i.e., the National Dairy Council, Nestlé Company, and Dannon), all the while chairing the Dietary Guidelines Committee that established the Food Guide Pyramid and setting national nutrition policy for the National School Lunch and Breakfast programs, the Food Stamp Program, and the Women, Infant, and Children Supplemental Feeding Program. Such antidemocratic alliances across government, science, and industry appear to persist in both First-World and Third-World contexts, exemplifying the links between intranational and international colonization.

**Material Perspectives on Milk and Bovine Agency**

The parallels between the findings in animals and humans are indeed remarkable.


What is the embodied experience of a dairy cow, and how can we know it? To date, this question has been addressed primarily from the standpoint of the animal sciences—that is, those who unabashedly explore lactation, maternal behaviors, weaning distress, and the implications of breaking mother–calf social bonds in their research, all for human profit. Some of these studies combine an animal welfare approach with their quest for profits, while others seem purely production-focused. Acknowledging the well-known role of the hormone oxytocin (OT) in pregnancy, birth, and lactation, these milk studies examine OT specifically in terms of milk production and maternal behaviors. One study compares milk production when mother cows are milked in the presence of their calves, and then allowed to nurse their calves, versus cows that are exclusively machine milked without their calves; this study finds that the bodies of mother cows release more oxytocin in the presence of their calves, and thus they produce more milk even though they nurse the calves after machine milking. Without their calves, mother cows produce little or no oxytocin, reducing the milk production (“ejection”) to such an extent that dairy farmers regularly rely on “tactile teat stimulation, either manually or by
the milking machine,” and dairy scientists believe “it is necessary to elevate oxytocin blood concentrations either by exogenous oxytocin or by applying nervous stimuli such as vaginal stimulation which are strong enough to induce endogenous oxytocin release.”80 Another study explored the effects of oxytocin injected into cows whose milk production is disturbed by being “switched from suckling to machine milking” or by being “milked in unfamiliar surroundings.”81 The study acknowledges that “in dairy practice, OT treatments are frequently applied intramuscularly at a very high dosage,” which increases oxytocin for a few hours,82 but has the lasting damage of desensitizing the cow’s udder and producing a reliance on repeated injections to obtain milk.

Studies of “weaning distress” find that this distress can be reduced by “disentangling” the various aspects of weaning—cow–calf separation and the act of nursing.83 Acknowledging that oxytocin is involved in nursing for both the mother cow (as a response to the presence of the calf and teat stimulation, OT promotes lactation) and her calf—OT is released in the calf’s body “only when calves were nursing from the cow and not when drinking milk from a bucket”84—animal science researchers then propose that OT is comparable to other “opiate-like substances in milk” rather than a material produced through and reinforcing attachment—and thus “young mammals develop an addiction to milk and without that source of opiates, they become like addicts craving their drug of choice!”85 Pathologizing oxytocin—the biological foundation of the mammal mother–infant affectionate attachment, a material and relationship crucial to species survival—animal scientists strive to construct their own role in separating mother cow–newborn calf dyads as simply hastening an act of healthy separation.

A cornerstone of animal science scholars’ arguments is the theory of “parent–offspring conflict” first described by Robert Trivers and persistently cited as a fact supporting the commercial dairy farmers’ practice of separating mother cows and calves within two to six hours after birth.86 According to this theory, “weaning conflict” arises from the fact that while mammal infants benefit from continued mothering and nursing, the “level of maternal investment” decreases with age, and the mammal mothers “do better” or “benefit” from investing in future reproduction and new offspring, leaving the older offspring to forage for themselves.87 Exploring variations on the timing of mother–calf separation, watering down milk, and providing sucking substitutes, and even comparing Harry Harlow’s well-known abusive research on infant monkeys88 with human toddlers’ use of stuffed animals to support the claim that “animals—including humans—routinely develop attachments to inanimate objects,”89 animal scientists use false analogies and flawed logic in their attempts to produce
scientific legitimation for the exploitive practices of commercial dairying. But they stand on slippery ground: all their data point to the fact that severing the mother cow–calf relationship—a complex relationship that involves a constellation of maternal behaviors responding to the copresence of mother and calf (licking, sniffing, nursing, calling, and bio-behavioral synchrony)—is what causes emotional, behavioral, and biological distress.

Instead of focusing on the material of milk production, studies of oxytocin in human mammals tend to focus on relational behaviors, attachment, nurturance, empathy, and happiness—yet material and relational elements are present for both bovine and human mother–infant pairs. In the special 2012 issue of *Hormones and Behavior* titled “Oxytocin, Vasopressin, and Social Behavior,” scholars suggest that these hormones “modulate human social behavior and cognition,” “enhance interpersonal trust,” and “have been linked to attachment, generosity, and even pair bonding in humans.” As with other animal studies, these studies of human relations showed that oxytocin release is behaviorally influenced, promoted by the mother’s breastfeeding, her physical proximity (which includes touch, odor, movements, body rhythms), her affectionate gaze and vocalizations, which together create the bio-behavioral synchrony that lays the foundation for such social, emotional, and cognitive competencies as self-regulation, empathy, social adaptation, and a reduced risk of depression, as well as supporting more secure romantic relationships in adulthood. Mothers’ oxytocin response is moderated by contextual factors and individual characteristics; it may be influenced by the mothers’ experiences of parental care from their own childhoods, thus paralleling research for other animal species, indicating that the generational transmission of OT operates through parenting behaviors. Most interesting for gender equity is the study assessing oxytocin levels in first-time parents, which found “comparable levels of baseline OT in fathers and mothers,” indicating that “active paternal care provides one pathway to activate the OT system in bi-parental mammals, which in mothers is triggered by birth and lactation.” In this study, both parents showed bio-behavioral synchrony with their infants, though each parent engaged in gender-specific behaviors (i.e., fathers tended to throw the infant in the air, move the child across the room, or move the child’s limbs, behaviors that nevertheless increased the fathers’ OT levels).

Animal science research can thus be used to undermine or to advance animal industry and technology, and influence interspecies relations. The dance of infant cry and maternal milk letdown is biologically and behaviorally encoded, but the code can be broken; in 2012 animal scientists are selectively breeding cows that seem indifferent to separation from their newborn calves. “How do...
you break a wild animal?” asks Patrice Jones. “The key can be found in the word itself: You sever connections.”

Inside each glass of milk is the story of a nursing mother separated from her offspring. To justify and feel comfortable in “breaking” the bio-psycho-social bonds that join mother and calf, dairy scientists, dairy farmers, and dairy consumers alike must deny the web of relationships that defines healthy ecosystems. Although animal science scholarship provides ample documentation of the distress this separation produces for both mother cow and calf—“vocalizations” averaging more than 120 calls during twenty minutes for the calf, and “increases in vocalizations and activity” for the mother cows—the abstractions of the words used to describe this distress shield us from the images of the cows and calves themselves. Bovine resistance to commercial milk production is concealed in these animal science studies and requires a critical animal studies approach to uncover.

Animal activists confirm that cows separated from their calves bellow and appear to grieve for days afterward, sometimes ramming themselves against their stalls in attempts to reunite with their calves. News articles report the “amazing” feats of cows returning across miles of countryside to nurse calves from whom they were forcibly separated. Some cows even use subterfuge to deceive dairy farmers and protect their calves. The veterinarian Holly Cheever recounts one such experience when she was contacted for consultation by a dairy farmer whose cow was mysteriously dry. With her fifth pregnancy, the cow had disappeared to give birth and returned with her calf, which the dairy farmer promptly removed; she was milked morning and night, but produced no milk. Days later, the farmer called back: he had followed the cow out to pasture during the day and discovered her secret. The mother cow had given birth to twins, and had hidden one in the tall grasses. As animal science researchers acknowledge, “Under natural conditions cattle ‘hide’ their young away from the herd, returning at infrequent intervals during the day to suckle.” But what Cheever noted is a sophisticated conceptual process that the dairy scientists did not predict: this cow was capable of remembering the four prior births and the loss of those calves; this cow was capable of anticipating a similar fate for her new offspring; this cow made a kind of “Sophie’s Choice” decision in choosing which of the twins to bring back to the dairy farmer and which of the twins to hide and protect; this cow was capable of subterfuge, stealthily returning to nurse her newborn each day, then presenting herself for milking at the usual hours, morning and night. Though Cheever “pleaded for the farmer to keep her and her bull calf together, she lost this baby, too—off to the hell of the veal crate.” Cheever’s observation documents an example of farmed animal agency and resistance.
How does drinking this bovine mother’s milk shape human identity? Who do we become?

**Toward a Feminist Milk Studies**

In California and Wisconsin, rows of cows are lined up in stalls, with metal suction cups pumping on their teats, extracting milk; on the May 21, 2012, cover of *Time* magazine, a twenty-six-year-old mother is pictured, breastfeeding her three-year-old son. Which image is more shocking?

Ideologically imprisoned in a humanist colonial framework, few human mothers who breastfeed their infants use this embodied experience as an avenue for empathizing with other mammal mothers; few human parents who touch and nurture their newborns have used these behaviors’ affectionate oxytocin release as an opportunity to consider the experiences of other animal parents locked in systems of human captivity. Feminist milk studies addresses the bio-psycho-social connections produced through the behavioral and material elements of this first relationship, the mother–infant bond, and their *nursing milk*.

For too long, the dominant culture has childishly projected its own gendered image onto nature as selfless and self-sacrificing mother, as in Shel Silverstein’s book *The Giving Tree*, or onto other mammal species, requiring the female bovine to symbolize maternal nature: mindless, patient, slow-moving, lactating. If we set aside this stereotype and look into her eyes, what can we see?

**Notes**


11. Ibid., 28–29.


15. Ibid., 64–82.

16. Ibid., 91.


34. The discrepancy between the World Health Organization’s (WHO) recommended two years of breastfeeding and the American Academy of Pediatricians’ (AAP) recommended six months has more to do with cultural and economic contexts than it does with babies. As the WHO confirms, breast milk contributes to infant health and emotional well-being on multiple levels, providing 100 percent of infant nutrition for the first six months of life, up to one-half or more of nutritional needs for the next six months, and up to one-third of nutritional needs the second year of life (see www.who.int/nutrition/topics/exclusive_breastfeeding/en/). In global contexts, and particularly in rural or developing countries, infants who are fed formula are at greater risk of mortality because of unsanitary conditions (i.e., polluted water, unwashed bottles, diluted formula), and thus breastfeeding is a greater protection for life; moreover, a culture of prolonged breastfeeding persists in less-industrialized parts of the world. In a first-world context, where mothers are more likely to have access to bottle sanitation, purified water, economic or food aid, and infant formula—coupled with the pressure to earn income shortly after childbirth, and the heteropatriarchal sexualization of women’s breasts as toys for adult men rather than as functional sustenance for infants—the AAP strategically recommends the minimum duration for breastfeeding, yet only 12 percent of mothers meet even this recommended minimum, a sharp decline from the 70 percent of mothers who breastfed at the beginning of the 1900s (see Anne L. Wright and Richard J. Schanler, “The Resurgence of Breastfeeding at the End of the Second Millennium,” *Journal of Nutrition* 131.2 (2001): 4215–55. The other 88 percent face barriers that are linked to larger systems of racism and classism; see “Racial and Ethnic Differences,” www.cdc.gov/mmwr/preview/mmwrhtml/mm5911a2.htm/.


40. Ibid., 8.


45. As of July 30, 2012, allied chapters had formed in twelve other countries as well.


55. Operation Flood has been called the “White Revolution,” alluding to the Green Revolution of biotechnology and genetic engineering heralded by agricultural corporations such as Monsanto and Cargill, and strongly critiqued by scholars such as Vandana Shiva (Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology [London: Zed Books, 1993] and Biopiracy: The Plunder of Nature and Knowledge [Boston: South End, 1997]) as a pseudorevolution involving the massive theft of indigenous knowledge, biodiversity, seeds, and genes.
56. Alvares, Another Revolution Fails.
58. Alvares, Another Revolution Fails, 3.
59. Paradoxically, the rise of third-world elites through Operation Flood may have been enabled by the preceding three decades of animal welfare work undertaken by Mohandas Gandhi, India’s preeminent anticolonialist. Florence Burgat addresses at length the Gandhian concept of nonviolence in dairying and argues that “the field of animal husbandry is so vast that only an economic solution can be envisaged” (“Non-Violence towards Animals in the Thinking of Gandhi: The Problem of Animal Husbandry,” Journal of Agricultural and Environmental Ethics 14 [2004]: 239). Although Gandhi devoted much of his time from 1925 to 1947 (the end of his life) to implementing animal husbandry reforms, and the dairies he envisioned were indeed attempted between 1955 and 1966, they were eventually “excluded from the list of priorities” (246). Nonetheless, the National Dairy Development Board soon gave “significant scientific support” to “improve[ing] indigenous milk-producing species and to sett[ing] up model dairies” (246). Operation Flood was launched in 1970.
61. Sainath, “Cattle Class.”
62. Ibid.
63. Alvares cites an Indian Council Social Science study (Another Revolution Fails, 37–38).
65. Shiva, Biopiracy.
68. T. Colin Campbell and Thomas M. Campbell, The China Study (Dallas, TX: Benbella Books, 2006); Keon, Whitewash; Frank A. Oski, Don’t Drink Your Milk! (Brushton, NY: TEACH Services, 1977); Robbins, Diet for a New America.
70. Keon, Whitewash, 173; Wiley, Re-Imagining Milk, 80.
71. Wiley, Re-Imagining Milk, 80; cf. Campbell and Campbell, China Study.
73. Wiley, Re-Imagining Milk, 32.
74. Ibid., 33–34.
76. Wiley, Re-Imagining Milk, 59.
77. Campbell and Campbell, China Study, 312.
78. Of the studies surveyed here, scholars associated with animal welfare programs were universally housed in animal science and food science programs, not in the humanities.
80. R. M. Bruckmaier, “Normal and Disturbed Milk Ejection in Dairy Cows,” Domestic Animal Endocrinology 29 (2005): 271. In this quotation, humanities scholars will readily note the passive voice, a mode of diction that neatly sidesteps the question, “Who is stimulating this cow’s teats and vagina,
and for whose pleasure?” As pattrice jones has remarked, linking heterosexism and speciesism: “A primary tenet of gay liberation is that what consenting people do with each other’s bodies is nobody else’s business. And, of course, eating meat is something you do to somebody else’s body without their consent” (“Fighting Cocks: Ecofeminism vs. Sexualized Violence,” in Kemmerer, Sister Species, 47). Her observation could be applied equally well to this animal-science-initiated and uninvited sexual abuse of “dairy” cows.


82. Ibid., 63.


95. Along with diverse brain regions, oxytocin is also “released at peripheral cites, including the heart, thymus, gastrointestinal tract, uterus, placenta, amnion, corpus luteum, and testes, underscoring the widely-distributed and dynamic nature of OT production in body and brain”—confirming the biological basis for human males to release oxytocin in strong affiliative relationships (Feldman, “Oxytocin and Social Affiliation,” 382).


97. Lisa Kemmerer proposes the term nursing milk, which foregrounds the relational constitution of milk (“Appendix”). To conceal this relational ontology, the dairy industry in the United States promotes advertising that presents milk as a commodity; an object of liquid-in-a-glass that can produce “milk mustaches” and “strong bones/bodies” while concealing the fate (veal for males, future dairy cows for females) of those calves for whom the mothers’ milk was created to feed. No wonder that the viewing public has conveniently forgotten the fact that milk comes from teats and not cartons; such elision enables industrial dairy sales and production.


103. Cheever, “Cow Proves Animals Love, Think, and Act.”