WARREN BELASCO

Meals to Come

A HISTORY OF THE FUTURE OF FOOD

The publisher gratefully acknowledges the generous contribution to this book provided by the General Endowment Fund of the University of California Press Foundation.

University of California Press, one of the most distinguished university presses in the United States, enriches lives around the world by advancing scholarship in the humanities, social sciences, and natural sciences. Its activities are supported by the UC Press Foundation and by philanthropic contributions from individuals and institutions. For more information, visit www.ucpress.edu.

University of California Press
Berkeley and Los Angeles, California

University of California Press, Ltd.
London, England

Library of Congress Cataloging-in-Publication Data
Belasco, Warren James.
Meals to come : a history of the future of food / Warren Belasco.
p. cm.—(California studies in food and culture ; 16)
Includes bibliographical references and index.
ISBN-13 978-0-520-24151-0 (cloth : alk. paper)
ISBN-10 0-520-24151-7 (cloth : alk paper)
ISBN-13 978-0-520-25035-2 (pbk. : alk paper)
ISBN-10 0-520-25035-4 (pbk. : alk. paper)
1. Food—History. 2. Food supply. I. Title. II. Series.
TX353.B455 2006
641.3009—dc22 2005036472

Manufactured in the United States of America
15 14 13 12 11 10 09 08 07 06
10 9 8 7 6 5 4 3 2 1

This book is printed on New Leaf EcoBook 50, a 100% recycled fiber of which 50% is de-inked post-consumer waste, processed chlorine-free. EcoBook 50 is acid-free and meets the minimum requirements of ANSI/ASTM D5634-01 *(Permanence of Paper)*.∞

CONTENTS

ONE

THE STAKES IN OUR STEAKS

Stories about the future tend toward large abstractions. In part this is simply because the future *is* an abstraction; it has not happened yet. And it is also because futurists like to think about major dynamics and drivers: population growth, demographic variables, renewable resources, carrying capacity, economic development, industrialization, and so on. Similarly, food forecasts involve big generalizations and theoretical concepts: abundance, scarcity, total caloric demand, potential agricultural yields, hydraulic cycles, global warming, hybridization, to name a few. This book delves into many of these big-picture abstractions. But we should not forget that a book about food also deals with meals—intensely localized food events that require personal choices by real people. Everyone eats. Everyone has tastes and distastes. Everyone is picky. When it comes to deciding what to eat, the most abstract theorizers may be as picky as four-year-olds. Indeed, lurking behind their abstractions may be food prejudices and preferences formed when *they* were four years old. Mindful that deep-seated food values can influence how we see the world, I am struck by how much of the Anglo-American discussion of our future prospects has really been about our right and ability to eat meat, especially beef. And yet until the recent boomlet in academic food studies, few scholars dared to put such an explicitly carnivorous spin on their analyses of future demography, environment, and politics.[1]

Long before I became a food historian, I already knew that meat had much to do with politics, ecology, population, and the future. This idea

came not from classes but from student life, when I temporarily gave up meat in favor of grains and beans.[2] Like many converts to the countercuisine—the natural foods revival of the late 1960s and early 1970s—I started worrying about the future of the food supply when I read Frances Moore Lappé's *Diet for a Small Planet* (1971). For Lappé the meat-centered diet favored by most Americans clearly threatened the ability of future generations to feed themselves. Labeling the typical grain-fed farm animal "a protein factory in reverse," Lappé argued that it took 21.4 pounds of feed-grain protein to produce one pound of beef protein. Other livestock were only marginally better, with feed-to-food conversion ratios of 8:1 for pork, 5.5:1 for poultry, and 4.4:1 for milk. Feed crops occupied one-half of all harvested agricultural land in the United States, which served almost 80 percent of its grains to animals. Tapping countercultural images of addiction, Lappé labeled Americans "protein heads" who hogged the world's protein resources while millions elsewhere starved. Reducing U.S. livestock by half would meet the Third World's "caloric deficit . . . almost *four times over.*"[3] In later editions, Lappé zeroed in on the class aspects of diet: Americans drove Cadillacs while much of the world barely walked. The well-fatted steak took food out of the mouths of others while it clogged our own arteries. It also degraded our agricultural resources, for the heavily industrialized farming that produced this meat consumed more energy than it yielded, "mined" the topsoil for nutrients, and polluted the water with runoff chemicals and manure. In short, a meat-centered diet was unhealthy, unfair, and unsustainable.[4]

Like many young people just awakening to the world's ecological crises after the first Earth Day (1970), I assumed that Lappé's analysis was radically new. After thirty years of further study, I am still persuaded by her argument,[5] yet I now see that meat has affected population growth, conquest, and resource issues for quite a long time. Over 2,400 years ago, Socrates argued that domesticated meat's lavish land requirements inevitably led to territorial expansion and war with neighbors. In *Guns, Germs, and Steel* (1997), Jared Diamond suggests that Eurasia was the origin of so many expansionist empires precisely because it harbored such an abundance of domesticated mammals. According to medievalist Massimo Montanari, invasion of the declining and still largely vegetarian Roman Empire by northern, meat-eating "barbarians" brought widespread deforestation and consolidated landholding to accommodate larger herds of livestock. And since 1492, European livestock may have done more to destroy Native American ecosystems than all the human invaders

combined. In *The Conquest of Paradise: Christopher Columbus and the Columbian Legacy,* Kirkpatrick Sale writes, "Cattle reproduced so successfully on Española [Hispañola] that, it was said, thirty or forty stray animals would multiply to three or four hundred in a couple of years. . . . All these voracious animals naturally dominated and then destroyed native habitats, rapidly and thoroughly, with human help and without." Jeffrey Pilcher observes in his history of Mexican foodways: "The introduction of livestock proved to be the greatest success story in the culinary conquest of America. . . . Herds [of cattle] overran the countryside, driving Indians from their fields."[6]

By the late eighteenth century, calculations of livestock's ecological and political costs had become a staple of British vegetarian literature, as in William Paley's 1785 *Principles of Moral and Political Philosophy:* "A piece of ground capable of supplying animal food sufficient for the subsistence of ten persons would sustain, at least, the double of that number with grain, roots, and milk." In 1811, radical publisher Richard Phillips argued that British farmers could potentially feed forty-seven million vegetarians "in abundance" but "sustain only twelve millions *scantily*" on animal products. Similarly, poet Percy Bysshe Shelley's "Vindication of a Natural Diet" (1813) blasted the meat eater who would "destroy his constitution by devouring an acre at a meal."[7]

Both Phillips and Shelley had supped at the table of the renowned romantic radical William Godwin (Phillips as Godwin's publisher, Shelley as his future son-in-law). While the utopian socialist Godwin would never have dined with the conservative economist Robert Malthus, on one point they did agree: the ecological wastefulness of meat production. Malthus, in his *Essay on the Principle of Population* (1798), cited "an acknowledged truth, that pasture land produces a smaller quantity of human subsistence than corn land of the same fertility. . . . The present [grain-based] system of grazing, undoubtedly tends more than the former system to diminish the quantity of human subsistence in the country." Unchecked population growth, Malthus warned, would necessarily require a reduction of meat—this in fact had already happened as the European population boomed after the seventeenth century.[8] While the rich could always afford meat, the inherent extravagance of livestock production reduced the grain available for direct consumption.

Malthus disagreed loudly with Godwin's circle over what to do about this. Godwin's followers were willing to cut back on or even give up beef in order to feed more people, for a larger population would, as they put it, increase "the aggregate of human happiness."[9] But Malthus was not.

While Malthus did offer an abstract agronomic rationale for raising cattle—that manure made excellent fertilizer—I suspect that taste also guided his reasoning, for his countrymen simply loved beef, especially the "fatted" and ecologically costly grain-fed variety that British herdsmen had just begun to produce in the 1790s.[10] Malthus thus discounted the voluntary asceticism suggested by Godwin's circle. Oh yes, he allowed, a frugal, all-vegetable diet modeled after that of China or India *could* sustain a growing population, but he thought such a drab cuisine would surely chill the utopian's "spirit of benevolence," which, "cherished and invigorated by plenty, is repressed by the chilling breath of want." Why try to stretch the grain supply to accommodate more people when a less crowded planet's diet would be so much tastier? As for the optimum human population, neo-Malthusian ecologist Garrett Hardin suggests: "There should be no more people in a country than could enjoy daily a glass of wine and a piece of beef with their dinner."[11] Such a high standard of living would clearly require fewer forks—a point that neo-Malthusians have made consistently when advocating birth control. Against this restrictionist credo stood the more-the-merrier faith of Godwin's followers. By foregoing livestock production, agriculture could sustain at least four times as many "human beings in life, health, and happiness," American vegetarian crusader William Alcott argued in 1848. Indeed, Alcott suggested—anticipating right-to-life arguments to come, albeit organized around matters of food choice, not reproductive rights—a food production system organized around "flesh-eating" amounted to the murder of future generations, for "we prevent their coming into the possession of a joyous and happy existence, and though we have no name for it, is it not a crime?"[12]

As this book shows, this argument has been going on, more or less steadily, for the past two centuries. But so far, neither the egalitarian/vegetarian nor the Malthusian view has prevailed. Rather, the dominant position has been that of Malthus's *other* opponent, the Marquis de Condorcet, an Enlightenment philosopher who insisted that we do not have to give up anything—babies *or* steaks. A consummate cornucopian, Condorcet confidently predicted that scientific research could increase agricultural yields indefinitely. With proper encouragement of the agricultural "'arts' . . . a very small amount of ground will be able to produce a great quantity of supplies of greater utility and higher quality." And even if some upper limit were reached in the distant future, there were no theoretical obstacles to "manufacturing animal and vegetable substances artificially." For Condorcet, "the perfectability of man is

indefinite"—especially *if* good science was supported by good government. As I argue later, this is a significant "if"—an enormously utopian caveat. Doubting the "if," Malthus urged a more "sober" look at human history that seemed to disprove such "elate and giddy" fancies. Perhaps mindful that Jacobinic excesses had recently killed many French intellectuals, including Condorcet, Malthus questioned the ability of humans to devise the wise political institutions needed to subsidize truly democratic scientific research. Godwin, on the other hand, firmly agreed with Condorcet's humanistic confidence in an infinite creativity capacity—"Man is a godlike being. We launch ourselves in conceit into illimitable space and take up our rest beyond the fixed stars"—but his faith rested less on technological ingenuity than on egalitarian, democratic reform; in other words, the political half of Condorcet's "good science + good government" equation.[13]

With all these appeals to ultimate goals and credos, the stakes in this argument clearly extend far beyond our taste for steaks. As Frances Moore Lappé and almost every debater before and after her has known, the anxieties, hopes, and assumptions expressed about the meaning and future of meat reflect a larger debate about the meaning of progress itself. The rest of this book details some of the more important forecasts, especially the recurrent predictions about animal foods. But before recounting these speculations, it seems reasonable to ask why so much expectation has been embodied, as it were, in such fleshy issues. Why such an extended and weighty discourse about the future of meat eating? To paraphrase Byron, why *does* so much depend on dinner, especially the meat-and-potatoes kind?[14]

The assumption that there is something inherently essential about a carnivorous diet often surfaces when meat eaters are challenged by moralistic vegetarians. For example, I ask each of my food studies students to share the following highly incendiary passage by novelist Isaac Bashevis Singer with five people and to track their reaction:

> I watched someone at the next table working away at his plate of ham with eggs. I had long since come to the conclusion that man's treatment of God's creatures makes mockery of all his ideals and the whole alleged humanism. In order for this overstuffed individual to enjoy his ham, a living creature had to be raised, dragged to its death, tortured, scalded in hot water. The man didn't give a second's thought to the fact that the pig was made of the same stuff as he and that it had to pay with suffering and death so that he could taste its flesh. I've more than once thought that when it comes to animals, every man is a Nazi.[15]

Having taught this course for many years, I have read thousands of responses. It is telling that when confronted so aggressively, many people do not feel satisfied defending their food preferences on the basis of taste, convenience, or even nutrition alone. Rather, they seek the higher ground of a timeless archetype that seems to stand beyond disproof. In Western culture, Biblical references often serve that function, and most of my students' respondents seem confident that if (according to Genesis 1:28) God gave us dominion over animals, sent us into the land of milk and honey (Exodus 3:8), and then told us to sacrifice the fatted calf (Luke 15:23), their cheeseburger stands sanctified by holy writ.

However, think tankers engaged in the food security debate have mostly been secular modernists well aware that our meat-centered diet is a relatively novel luxury. In *Feeding the World,* geographer Vaclav Smil observes that "per capita means of meat consumption remained low during the whole preindustrial era, averaging usually no more than 10 kg/year." Well through the mid-nineteenth century the bottom half of French and British societies consumed less than 20 kilograms of meat a year, and not until after World War II did Europe's richest countries reach the levels of meat consumption that Americans had enjoyed one hundred years earlier. Less affluent countries have lagged far behind. For example, in 1995 the average Filipino ate 20 kilograms of meat a year, compared with 80 kilograms per capita in Western countries. And feeding grain to livestock—Lappé's bugbear—is even *more* modern. According to Smil, only about 10 percent of the world's grain was fed to animals in 1900; by 1950 it was 20 percent, and by 1990, 45 percent. Feedlots accounted for 43 percent of the world's beef in 2003—and for well over half of the world's poultry and pork. The percentages were much higher in the richer countries, of course, and that may be exactly the point: to the extent that meat eating increases with affluence, it has been associated with Progress, a highly contested ideology. If there is a common thread linking the dietary assumptions, hopes, and fears of those who have pondered the future of food, it has to do with the meaning of "growth," "evolution," "improvement," "modernization," "development."[16] And with that come issues of power—the stakes in steaks.

For the nineteenth century's dominant class, Progress meant the expansion of Civilization, which in turn meant the hegemony of carnivorous Europeans. Numerous historians have quoted American neurologist George Beard, an influential Victorian health advisor: "In proportion as man grows sensitive through civilization or through disease, he should diminish the quantity of cereals and fruits, which *are far below him* on

the scale of evolution, and increase the quantity of animal food, which is nearly related to him in the scale of evolution, and therefore more easily assimilated." In Beard's evolutionary hierarchy, those closest to apes—"savages"—could more easily follow the apes' vegetarian diet. In other race-based schema, however, "savages" were slurred as cannibals, who, in a sense, ate a *lot* of meat but of the inappropriate variety. Conversely, a grain-based diet was associated with declining regimes whose starved peasantry needed liberation by enlightened Westerners. From Columbus onward, European colonial ventures were often justified as progressive crusades against both primitive cannibalism and feudalistic vegetarianism. Just as Europe's classical heritage valued moderation, the Spanish steak and Anglo-American roast seemingly occupied a robust middle ground between the extremes of wildly uncivilized cannibals and decadently *over*civilized, rice-eating Orientals. And few imperialists doubted that red meat would trump white rice and all starch-based societies. "The rice-eating Hindoo and Chinese, and the potato-eating Irish are kept in subjection by the well-fed English," Beard observed.[17]

The association of beef with colonial subordination goes back to the seventeenth century, as when Rhode Island founder Roger Williams urged natives to keep cattle as a sign of their move "from Barbarism to Civilite"; it was fitting that Native Americans who refused to be so "civilized" fought back by attacking the settlers' cows. But the steak-eating "races" did ultimately triumph, as a 1909 medical text trumpeted: "White bread, red meat, and blue blood make the tricolor flag of conquest." Such overtly racist sentiments were heard well through mid-century, as in a 1939 text sponsored by a meat company: "We know meat-eating races have been and are leaders in the progress made by mankind in its upward struggle through the ages." Eating grain-centered "natural foods," a chemist warned in 1957, would mean a reversion to "cave man days." These attitudes were effectively reinforced by immigration to the Americas, where a meat-based diet was taken as a sign of having arrived in a truly better future of market-based "freedom of choice." In a 1906 essay, "Why There Is No Socialism in the United States," German sociologist Werner Sombart concluded that to the extent that immigrants ate more meat, especially beef, they became more American—and less likely to become subversive radicals: "All socialist utopias come to nothing on roast beef and apple pie." On the other hand, those who persisted in their grain-based Old Worldish ways were somewhat suspect for their resistance to a classic cornucopian perquisite—the expansion of appetites and waistlines.[18]

Vegetarians also accepted the savage-to-civilized spectrum, albeit in

reverse. Some, like George Bernard Shaw, simply inverted the evolutionary ladder and put vegetarians on top in terms of "cultivation," or refinement. "A hundred years hence a cultivated man will no more dream of eating flesh or smoking than he now does of living, as Pepys' contemporaries did, in a house with a cesspool under it." Implicitly likening genteel beef-eaters to primitive man-eaters, Shaw quipped that meat eating was "cannibalism with its heroic dish omitted." Feminist temperance leader Frances Willard agreed that the advance of civilization would preclude eating meat: "The enlightened mortals of the 20th century surely will be vegetarians."[19]

Others allowed that meat might very well be part of Civilization, but like Huck Finn fleeing his genteel Aunt Sally, they would just as soon light out for what they argued were more robust territories. Historian James Whorton writes: "One of the pillars of the [nineteenth-century] physiological argument against meat eating was the contrast between the vigorous vegetarian races of the world and the puny flesh eaters. Time and again, the [carnivorous] Eskimo and Laplander were humiliated by being lined up against the [vegetarian] natives of the South Seas and of central Africa, the peasantry of Ireland, Spain, and Russia, even the slaves of the American South, whose 'bodily powers are well-known.'" "The brave and vigorous Spartans never ate meat," domestic reformer Catharine Beecher argued. "Most of the hardiest soldiers in Northern Europe seldom taste of meat. . . . Except in America, it is rare that the strongest laborers eat any meat."[20]

Others allowed that carnivores had powers, too, but of the wrong kind. Sylvester Graham warned that meat eating unleashed "despotic, vehement, and impatient" forces. While Western culture commonly attributed such characteristics to older, more primitive societies, for Graham such carnal appetites and excesses belonged to modern urban life. This countercultural critique, rooted in the romantic vegetarianism of the early nineteenth century, blamed mankind's fall from innocence on Prometheus, who, by stealing fire from the gods, enabled men to roast meat. With the taste for flesh came modern greed, lust, and ambition. Godwin's son-in-law Shelley doubted "that had Buonaparte descended from a race of vegetable feeders, that he could have had, either the inclination or the power to ascend to the throne of the Bourbons." Similarly, in *Frankenstein* Mary Shelley's misbegotten Creature adopted a vegetarian diet in his search for an existence more peaceful and virtuous than that led by his unscrupulously ambitious human creator.[21] Accepting this basic belief that vegetarians were more tranquil, many utopian novelists

envisioned future societies that conspicuously eliminated—or greatly reduced—the role of animal foods. In all, these romantics revalued the dominant evolutionary scheme. Most agreed that most "primitive" peoples ate less meat (especially beef) than more "advanced" ones; the difference was over whether one *liked* the results of such "progress."

At the end of the nineteenth century, these ethnocentric theories of progress became mixed with somewhat more scientific-sounding appeals to efficiency. Adopting the time-management calculations of what historian Harvey Levenstein calls the New Nutrition (1890–1930), many experts endorsed animal products as the most efficient way to ingest nutrients, particularly calories and protein. For these Progressive-Era theorists, nutrient-dense animal foods had the key quality of all-in-one "smartness" that would characterize many futuristic products of the twentieth century, such as vitamin pills, diet shakes, power bars, nutraceuticals, and other "functional foods." Understandably, such notions were especially appealing to the livestock industry, which heavily subsidized and publicized much nutritional science research.[22] During the Second World War, American scientific consensus recommended unprecedented proportions of red meat as "a fighting food." "It's an important part of a military man's diet," one Office of Price Administration pamphlet proclaimed, "giving him the energy to outfight the enemy." It was assumed that American troops "could not do their job on a diet of beans," nuts, figs, and berries.[23] While Americans on the home front cut back temporarily for the sake of the fighting men, they assumed that victory would mean more meat in their diet than ever. Modern economic historians reinforced meat's evolutionary/progressive gloss by noting that humans usually eat more animal foods as they prosper. This observation was not new, as one of the few points of agreement between Malthus and Marx was that workers would immediately spend pay raises on more meat. Elaborating on this tidbit of economic history in 1941, M. K. Bennett propounded what came to be called Bennett's Law: with more industrialization people inevitably eat more meat, dairy, alcoholic beverages, and processed foods, and fewer "starchy staples"—a rather dreary, ideologically loaded term for what vegetarians considered a rich array of grains and legumes. The axiom that economic development—the modernist equivalent of the Victorians' Higher Civilization—would automatically move people "up the food chain" was repeated through all the food security debates of the late twentieth century.[24]

In a 1990s version of this "nutrition transition," Adam Drewnowski has proclaimed as "inevitable" and "irreversible" the developing world's

adoption of Western dietary patterns, saturated fats and all. Dismissing as "naive" the Lappé-style hope that "the affluent will ever voluntarily adopt a diet of poverty"—in other words, a "Chinese-style" diet based in carbohydrates, with meat as a spare condiment—Drewnowski seemed to accept what neo-Malthusian Lester Brown, in *Who Will Feed China?* (1995), deplored: the wealthier Chinese are now consuming more meat, fat, and sweets. While Brown worried that China might drain world grain supplies to support its expanding appetite for animal foods, Drewnowski did not say how the world would sustain this "nutrition transition."[25] In 1998, Monsanto president Robert Shapiro offered biotechnology as the solution. Since people will automatically "*move up the protein ladder*" as they prosper, Shapiro reasoned, genetically engineered corn and soy offer a "sustainable" and "equitable" alternative to conventional, chemical-dependent feed grain production, which may have fed 1 billion people well, but with "colossal wastefulness."[26] Shapiro's rhetoric shows how the more savvy marketers might attempt to straddle agendas of all three contenders: Malthus (sustainability), Godwin (equity), and Condorcet (greater yields).

Whether posed in racial, economic, or nutritional terms, these evolutionary tales usually locate utopia in the meat-eating West and dystopia in the grain-based East. While some romantics have valued peasant cuisine for its healthy vitality and ecological sustainability, in most forecasts Asia has stood for a despotic, hungry past and also for an undesirably overcrowded future. Both Condorcet and Godwin worried that the spread of Oriental despotism to the West might hinder the scientific innovation and political reform needed to combat hunger. For Malthusians, Asia has been an object lesson in how population could outpace food production. In 1924 plant scientist Edward M. East predicted: "The China and India of today will be the world of tomorrow when the world as a whole reaches the same population status." In this Asiatic world, "food is scarce. Man works from sun to sun. When crops are good there is unrest but no rest, there is privation and hardship; when crops are bad there is mass starvation." Similarly, a 1951 *Atlantic Monthly* article recommended studying famine-plagued India "as a corrective to complacency," for, with the population increasing faster than the food supply, "the world is moving toward the condition that India has already reached." And forty years later, David and Marcia Pimentel warned that "as our population escalates, our resources inevitably will experience pressures similar to those now experienced by China," including a largely vegetarian diet imposed by a shortage of land, water, and energy.[27]

A professor at the East India Company's training school for colonial bureaucrats, Malthus established the theme of Asia as harbinger of the future early on with references to China and India as worst-case scenarios of unchecked growth: China represented overpopulated places "where people are habituated to live almost upon the smallest possible quantity of food," mainly rice and "putrid offals" (the last an image likely to create far more repugnance among British readers, Stephen Mennell suggests, than among French cooks, who might actually savor such entrails). And the "famines of Indostan," Malthus continued, offered a tragic example of nature's "checks" in action; in short, a total breakdown of a food production system that, at best, provided bare-bones subsistence.[28] To simplify the axiom: China = little food, India = no food. Only a few radicals noted that European intervention and corrupt government had much to do with modern food system failures in both countries (or that the same politics had produced numerous famines in the West as well). In most Malthusian discourse, India and China's ills were the unfortunate result of an inherent propensity to multiply. Ever the materialist, Malthus blamed rice agriculture for Asia's overpopulation precisely because it was so much more productive than meat or wheat: "Corn [British for 'wheat'] countries are more populous than pasture countries, and rice countries are more populous than corn countries." With more food, the Malthusian law went, came more babies—until the next famine restored a temporary balance.[29]

According to one 1928 iteration, because Asians were stuck in this overpopulation-famine trap, the vegetarian nations of the Orient were more fatalistic. Warning in 1955 of a population crisis wrought by the birth of "80,000 Hungry Mouths a Day," biologist Paul Henshaw detected an Oriental "self-abnegation—a suppression of the ego-centered desires [such as a taste for meat?]." Then there were frequent commentaries on India's perplexing refusal to eat its abundant if somewhat scrawny cattle. What else but self-abnegating fatalism could explain this inability to exploit such a ready source of protein? Reflecting Western blindness to vegetarianism—and to the important ecological functions performed by India's cows—the pseudoanthropological phrase "sacred cow" came to stand for a misplaced, self-defeating superstition, or, as Merriam-Webster puts it, a belief "that is unreasonably immune from criticism or opposition."[30]

Malthus also argued that one check on population growth was emigration out of the crowded country—a frightening prospect for those whose countries would be "invaded" by these environmental refugees.

As long as Europeans could flee overpopulated homelands to their colonies, few whites complained, but when the flow went the other way, nativist sentiments multiplied. When East Asian immigration to the United States increased in the late nineteenth century, the "Yellow Peril" took visceral, culinary forms. Although many Asian immigrants worked in agriculture—and indeed helped to supply America's cheap and abundant produce and meat—their own cuisine was caricatured vividly and often viciously. People joked that Chinese food was just "cooked grass and noodles" and that it was so insubstantial that you always felt hungry an hour later. Worse, rumors circulated that the residents of congested Chinatown (a Malthusian microcosm) routinely consumed rats, dogs, and other "offal." Westerners also found significance in what Asians did *not* eat. Thus in 1953 a professor of medical geography could cite the "Chinese contempt for milk"—as well as the Indians' refusal to kill their allegedly nonproductive sacred cows—as evidence of a lower standard of living. Only in the late twentieth century, with growing interest in multicultural foodways, could a Chinese-American literature professor take pride in "how poor the masses of ordinary Chinese have been for millennia and how inventive hunger has made them. How from the scraps, offal, detritus, and leftovers saved from the imperial maw peasant Chinese have created a fragrant and mouth-watering survival."[31]

For much of the twentieth century, the preferred epithet for Chinese food was "coolie rations," which reflected the charge by white labor unions that competing Chinese workers were enslaved, subhuman "coolies"—even though most immigrants to the United States came freely and unencumbered. Given such sentiments, one wonders how receptive most Americans were to Pearl Buck's 1945 praise for the Chinese way of treating meat as a condiment rather than as the main dish: "We have known, abstractly, that the Chinese people is one of the oldest and most civilized on earth. But this [Chinese cook]book proves it. Only the profoundly civilized can feed upon such food." Although such a dietary shift would have conformed with official advice to conserve meat, it is telling that the U.S. government classified production of the tepidly Americanized Chinese food by La Choy as "nonessential" to the war effort, and the company was induced to sell out to budding food conglomerate Beatrice Foods in 1943. If the food of our Chinese allies was treated so indifferently, Japanese fare was considered repulsive refuse. According to a 1945 cookbook, "Every Jap[anese soldier] is outfitted with a tiny portable stove and a can of Nipponese 'Sterno.' In a small pouch he carries raw rice. He makes a stew of the dirty kernels and if he's lucky, embellishes it with

fish heads and tails. These are canned or salted down and, according to GIs, taste like preserved garbage."[32]

Academics engaged in the food-population debate often reinforced such stereotypes. In *Must We Fight Japan?* (1921), Columbia professor Walter Pitkin attacked those who would accept an "Asiatic standard of living" for the sake of a larger population. Noting that few Americans had cut back on meat (or wheat) during the recent war, Pitkin doubted the appeal of "universal vegetarianism, such as we now see all over Asia." Nor would "the white man" accept the way densely populated Asians often worked their tiny farms without animals. "Any white man who has observed the day's work of an Oriental who farms with few or none of the beasts of burden cannot honestly say that the Oriental is civilized. He has dispensed with the beasts only by making himself, his wife, and his children beasts." Pitkin's bestial analogy echoed popular Yellow Peril novels, which, Mike Davis shows, likened the Asian "invaders" to "swarming," grain-devouring locusts. Such Malthusian images of Asia endured in late-twentieth-century dystopian fiction, which frequently associated a Malthusian future with "fishy" synthetics, grilled "offal," and grainy gruels. For example, in the 1982 film *Blade Runner,* the Los Angeles of 2019 resembles a nightmarish Tokyo—Davis calls it "mongrel masses on the teeming ginza"—where ordinary people subsist on artificial sushi and cheap noodles.[33]

Since, until fairly recently, more South Asians migrated to British lands than to the United States, India has remained a sad but less threatening abstraction for most Americans, except perhaps as a dinnertime goad to "clean your plate" for the sake of the "starving Indians," whose pictures frequently found their way into travelogues, news reports, documentaries, and popular books on hunger and population issues. In addition to encouraging the expansion of American waistlines, such images served all three debating positions. Altruistic descendants of Godwin exploited guilt-inducing famine photos to gin up support for everything from charity to revolution. (Thus the first line of Lappé's *Diet for a Small Planet* invokes the clean-your-plate-for-India cliché.) Malthusians used descriptions of an Indian famine, often conflated with other images of "swarming" Calcutta, to dramatize warnings about population saturation. Cornucopians, too, employed visions of the nightmare Asian alternative in their appeals for more agricultural research funding. Noting in 1913 that "economists prophesy a deficiency in the world's food supply," the president of the Society for Horticultural Science urged stepped-up efforts to discover new food plants as a way to forestall "the problems that will

confront us when people swarm on the land, as now in India or China." A 1928 editorial in *World's Work* hoped that research on higher food yields would head off the "menace" of an Oriental, vegetarian future. Working that same row twenty-five years later, *Farm Quarterly*'s editor urged more fertilizer research "if we want to continue eating our high-protein meat diet and not slip to the cereal diet of the Orient."[34]

Self-interest also guided the Cold War's Green Revolution: improving the supposedly abject Asian diet through the use of better seeds and chemicals would keep Asians from migrating here or, worse, going Communist. Inevitably, stories about the Asian economic "miracle" of the 1980s and early 1990s were accompanied by images of McDonald's restaurants in Beijing. After almost two hundred years of unrelenting contempt for "coolie rations," the thought of people lining up for Big Macs in Tiananmen Square was a miracle indeed! But quasi-Malthusian environmentalists like Lester Brown of the Worldwatch Institute were more worried than enchanted by the prospect of Asia's growing demand for animal protein. And a more nuanced, anthropological view might reveal that in much of the region a McDonald's meal was viewed as only a snack because it lacked rice and had *too much* bread and meat—the twin cornucopian staples of the Anglo-American diet.[35] Still, there was no doubt that Asian prosperity meant more meat consumption than before, and with that shift came the maladies of affluence, especially obesity, diabetes, cancer, and heart disease. Reporters seeking famine-stricken "basket-case" stories now headed away from Asia and toward sub-Saharan Africa.[36]

The need to have a dysfunctional Other against which people can measure their vitality suggests that something more than race or geography has been involved in the perennial contrasts between meat eaters and vegetarians: gender matters, too. In *Meat: A Natural Symbol,* Nick Fiddes links the prestige of meat, which has been growing since the seventeenth century, to the theme of *domination*—domination over nature, over animals, over resources, over other people. "Meat has long stood for Man's proverbial 'muscle' over the natural world." For Fiddes, that domination has included the patriarchal control of women, who have often been treated *as* meat and who historically tend to eat a lot less meat than men do.[37]

The gendered nature of meat production and consumption has deep roots—ranging from the sexual division of labor between male hunters of meat and female gatherers of everything else to the persistent distinction between male-associated red meat and female-associated salads. Such differences became institutionalized during the nineteenth century—the

same period when so many of our futurist themes were established. For upper-class Anglo-American women of the Victorian era, Joan Jacobs Brumberg has shown, the estrangement from meat became quite extreme: "No food (other than alcohol) caused Victorian women and girls greater moral anxiety than meat." For these women at least, Civilization meant less red meat, not more: "Meat eating in excess was linked to adolescent insanity and nymphomania." Similarly, Laura Shapiro attributes the genteel fetish of the decorative salad to "the assumption that women were averse to red meat." In the most popular late Victorian cookbooks, meat was to be disguised, and even frankfurters were to be blanketed in a "purifying" (and feminizing) white sauce. Meanwhile, back in the British metropole, Sidney Mintz observes, nineteenth-century working-class women were getting by on cheap calories from bread, jam, and sugar while their men demanded their daily meat ration. Reflecting the same dichotomy, American food policy during the Second World War assumed that fighting men deserved red meat, while women could make do with protein substitutes. After the war, Amy Bentley suggests, American women were more favorable to the continuation of meat and flour rationing if it helped to alleviate hunger elsewhere. The postwar boom also gave birth to the fast food industry, which entangled women as low-paid workers serving beef to a predominantly male clientele, while female customers favored salads, chicken, and other "lighter" fare.[38] Clearly, for much of history men have had a greater stake in steaks. Also, most futurists were (and still are) men. Putting these two factors together—the male slant in meat-eating and futurism—I wonder if it is their gender that has made male futurists more prone to worry about a meatless future, while female futurists may have been somewhat less fazed by the prospect of a "peasant" diet. It does not seem coincidental that, from Mary Shelley and Charlotte Perkins Gilman to Frances Moore Lappé and Marge Piercy, those utopians most comfortable with a more vegetarian future have usually been feminists too.

Though hard to prove—and by no means universal—the gender variable is worth remembering when assessing the direst forecasts discussed here. In addition to being more committed to meat, men have traditionally been less involved in cooking. Conversely, as improvisers, scroungers, and self-sacrificers, women have been managing scarcity for a very long time. Hunger expert Ellen Messer writes that women act as the "'shock absorbers' of the household, who absorb shortfalls in income or consumption, often at some nutritional cost to themselves." Along the same lines, geographers Peter Atkins and Ian Bowler report

that Brazilian women are "far better geared up [than men] for a household food emergency because of their closer involvement with day-to-day coping strategies."[39]

Perhaps men's remove from daily food preparation has made them somewhat more alarmist as they contemplate scarcity and famine. Anthropologist Carole Counihan suggests that in cultures where food is scarce, boys tend to suffer from greater "hunger anxiety" than housebound girls, who because they are held closer to their mothers' cooperative networks are better situated to find and prepare food. This shows up particularly in children's stories about hunger. "Girls seem more successful in their stories at resolving neediness," Counihan observes, "and are perhaps less threatened by it than boys." While girl writers devise practical ways to satisfy hunger, boys' stories end more violently, with a tendency toward moral abstraction. Could the same be said for some of the adult tales recounted here? In "Hedge Nutrition, Hunger and Irish Identity," Marie Smyth writes that for British Malthusian politicians the Irish famine was a highly theoretical exercise in overpopulation, but for Smyth's matriarchal ancestors it was an identity-shaping opportunity to learn how to scramble for berries, bake rough corn bread over peat fires, and feed a family. When Smyth's mother taught her to scrounge free food in hedges, "we were learning that a woman's work is to feed others, whether they are hungry or not." All over the world and throughout time, women have struggled and sacrificed to feed others, while men philosophize—and also eat better than women. Ironically, a nutritional case can be made that women should eat more meat (especially for iron), while men, who suffer more from heart disease, should eat a lot less.[40]

Although the Malthusians have sounded the loudest alarm about a meatless future, the cornucopians have not been silent either. At the risk of overdoing the point about gender, I would suggest that those cornucopians pushing high-tech "smart farming" tools and methods to produce more meat (again, for the sake of Progress) have been reenacting one of the earliest gender coups in history—the shift from a sustainable subsistence horticulture controlled or at least shared by women to a livestock-dependent, market-oriented monoculture controlled by men (i.e., husbandry). Carolyn Merchant estimates that female gathering, horticulture, and fishing produced 85 percent of the calories consumed by precolonial New England Indians, but this agricultural system, dominated by "corn mothers," soon gave way to the export-oriented, feed-grain-and-livestock economy of the "Puritan fathers." In Mexico, too, a corn-bean-

squash system managed by women was violently suppressed by Spanish settlers anxious to cash in on the European hunger for meat and wheat. Inevitably, in the mythologizing of Spanish cowboy culture in twentieth-century Anglo-American westerns, women had virtually no role at all—except perhaps as prudish schoolteachers hindering men from their bloodletting. If the main reason to Go West was to produce "good beef for hungry people," as the cattle-driving bachelor-hero of Howard Hawkes's *Red River* (1948) puts it, no wonder women were irrelevant. Similar gender transformations have occurred worldwide and have been viewed as essential to modern industrial "development." But not everyone has benefited equally from such "progress," which Indian eco-activist Vandana Shiva calls "maldevelopment." While industrial agriculture has boosted overall yields, it has often displaced women into subordinate service jobs and tasks. Similarly, on the domestic front, when modern husbandry, refrigeration, and, marketing greatly increased the meat supply in the late nineteenth century, the result may have been more roast beef for Father but "more work for Mother," who was now expected to prepare much more elaborate meals that she herself might not even share.[41] And when nutritional science put a higher value on protein derived from animals than from vegetables, or prized beef over poultry, or wheat over corn, it also reinforced that gendered realignment of status and power.

These, then, have been the many stakes in steaks: race, gender, health, purpose, progress, profit, power. This struggle for control of the food supply is an old tale, to be sure—as are so many of the stories we tell about the future.